THE WIACEK SITE

A LATE MIDDLEPORT COMPONENT SIMCOE COUNTY, ONTARIO

by

P.A. LENNOX
C.F. DODD
C.R. MURPHY

Ontario
Ministry of Transportation
and Communications

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The Ontario Ministry of Transportation
and Communications
Environmental Unit, Planning and Design Section
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Abstract

The Wiacek site is a small unpalisaded Iroquoian village that was occupied late in the fourteenth or early in the fifteenth century. Its settlement pattern and artifact assemblage follows that which is definitive of the Middleport Horizon of the Ontario Iroquois Tradition but its geographical location offers a glimpse of a distinctive northern expression. As one of the first extensive excavations and detailed reports of a period village in this region the site's documentation provides a strong basis toward understanding subsequent Iroquoian development.

Acknowledgements

The archaeological process is long and arduous, from initial identification of the resource, through the removal of the archaeological component from its endangered position on the landscape and through the numerous intervening stages of data processing, analysis and interpretation, culminating in the production of a report, humbly considered as replacement for that which has been destroyed. This is the task of many individuals and institutions to whom we are most grateful.

The entire process has required considerable funding which was supplied by the Ontario Ministry of Transportation and Communications, through it's Environmental Unit, Planning and Design Section, Southwestern Region. It has been through the interest, support and encouragement of Mr. C.M. Hilsden and Mr. David Wake, Senior Environmental Planners, and their conscientious attitude towards heritage conservation that the critical link between required resources and archaeology has in this instance been found. They and numerous other ministry employees are sincerely thanked for their efforts and expertise.

The Ontario Ministry of Citizenship and Culture, Archaeology and Heritage Planning Branch, through the graciousness of Mr. W. A. Fox, Southwest Regional Archaeologist, has provided lab and office space, equipment and secretarial services toward the support, and for the duration of the project. Mr. Fox and Mr. I. T. Kenyon, Field Archaeologist for that office, have generously given of their time and expertise to many facets of the project and are gratefully acknowledged for extending numerous professional contributions and personal courtesies.

The field crew must be commended for their efficiency and conscientious conduct toward the goals of the project. Aside from their duties as archaeologists and employees, their comradery made the project even more enjoyable. Under the direction of the senior author, the project was fortunate to enlist the services of several archaeologists; C. R. Murphy, C. F. Dodd, and D. Gordon. Additional field crew were provided through the temporary assignment of M.T.C. construction staff. Dislodged from their more familiar surroundings on construction, but able to apply some aspects of their previous training, and their willingness to learn the new tasks at hand were: D. Hurd, D. Walker, L. Prowse, B. Elliott, J. Roberts and J. Miller, their assistance was most appreciated.

The employees of the M.T.C. Barrie Patrol yard and in particular Mr. H. Hankin, among other services, made a water truck available to help curb the dust bowl conditions that otherwise made our archaeological features somewhat elusive. The assistance, above and beyond the call of duty, by A.G. Cook Co. Ltd. of Barrie, in supplying our heavy equipment and operators as well as other needs, is also gratefully acknowledged as are the volunteer efforts of G. Connoy, G. Trachsel, Dr. C. Ellis, Dr. H. Savage, C. Yasui, C. Lang and J. Crerar, which were critical to the excavation and derived sample from Midden E.

Several members of the field crew continued with the project during the fall and winter of 1983-84, to assist in many aspects of the lab work and reporting. Christine Dodd undertook analysis of the faunal collection with the generous assistance of Dr. H. Savage and the resources of the Faunal Archaeo-Osteology Laboratory at the University of Toronto, and Mrs. R. Prevec and her comparative collections. Christine's lengthy stay in Toronto while using those materials was facilitated by accommodation generously provided by Mr. and Mrs. G. Warrick. Christine also contributed numerous evenings and weekends of her own time during excavation to the task of keeping our settlement pattern maps up to date, and logically, after her recent detailed study of Iroqoian settlement patterns (Dodd 1984), went on to write up the settlement pattern data from the Wiacek site. Carl Murphy undertook the immense task of processing the flotation samples and sorting the various fractions. Carl's identifications of the archaeobotanical remains were assisted by Dr. J.H. McAndrews, Mr. R.D. Fecteau, and the comparative collections of the Archaeobotanical Laboratory at the Royal Ontario Museum. With such substantial, personal and scholarly contributions to the excavation and reporting of the Wiacek Site it is only fitting that these researchers join as co-authors in its presentation.

A welcome addition to the crew was Mr. D. Ross Hurd who was temporarily assigned to the archaeological endeavours of the Environmental Unit. From a lengthy background in construction with M.T.C., Ross provided continuous assistance to many aspects of the project, from the sites initial discovery, through its excavation, processing of samples, tabulation and manipulation of analyzed data and most graphically, in the final maps and illustrations that accompany this report. Further support in graphic illustrations and data tabulation was provided by Mr. D. Hohnstein, also reassigned from M.T.C. construction, during the final stages of report preparation.

Lastly, thanks are extended to the site owners, Mrs. Petronella Wiacek and her son Stanley Wiacek, who allowed prepurchase-access to the property, and with whom the remainder of the Wiacek Site and its fate rests.

Paul A. Lennox
London, Ontario

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CHAPTER I

INTRODUCTION

Site Location and Background to Investigations

The Wiacek site (BcGw-26) is located in the north-east corner of Lot 7, Concession XI, Innisfil Township, Simcoe County. Four kilometres south of Kempenfelt Bay (Lake Simcoe), the site is bordered on its south by a small tributary of Lover's Creek, on its north by the 12th Concession Road and on the east by the 400 highway (Figure 1 and 2). The site was first recorded in May of 1983 during an archaeological survey of the area to be impacted by the proposed construction of an interchange joining the 12th concession/Mapleview Road to the 400 Highway southbound. The construction, proposed by the Ontario Ministry of Transportation and Communications, required widening of Mapleview Road for a turning lane paralleling its south edge, and a triangular section of land along the west side of, and merging in a southerly direction with, the 400 Highway.

The discovery of several pieces of ceramic and lithic refuse on the plowed and weathered surface of the area initiated a more detailed examination. Our main concern at this time was to determine the extent of occupation via the distribution of surface materials and to estimate the impact that highway construction was to have on the site. By walking the area in closely spaced (approx. 3 metre) transects and flagging the extreme locations of cultural materials we were able to precisely define and map the site limits. Several middens which were also identified and mapped tended to be located adjacent to the limit of the distribution of cultural materials on the surface of the site, suggesting edge-of-village dumps. Refuse concentrations located within this border area tended to be more diffuse and less prolific.

Fortunately this survey was undertaken earlier in the year, by the time that salvage commenced in July the area had grown over considerably making it difficult to locate surface materials. The darker midden soils that were easily defined in the spring had since dried and were impossible to distinguish from the surrounding soil matrix during the salvage operations.

The spring survey revealed that cultural materials were distributed in a semi-circular configuration truncated on the north and not extending beyond Mapleview Road. The estimated area of the village remaining was .61 ha (1.5 acres). An estimated 1000 square metres(.25 acres) of the site appears to have been destroyed during the construction of Mapleview Road and 1000 square metres (.25 acres) of the site were threatened by the proposed construction. All told the original village size is estimated to have included about .74 ha (1.8 acres).

With highway construction a possibility in 1984, salvage was proposed and undertaken during the 1983 season. During late July and August of 1983 a full time crew of 10 was fielded for 5 weeks during which time excavation resulted in the salvage of areas to be impacted by construction. In addition, several exploratory test trenches were excavated and two longhouses, which were encountered within the proposed construction zone, were completely excavated including portions extending beyond the proposed right-of-way. A considerable volunteer effort was focused on screening portions of a plow-disturbed midden. The salvage resulted in the excavation of approximately 1200 square metres, representing 17% of the estimated village area.

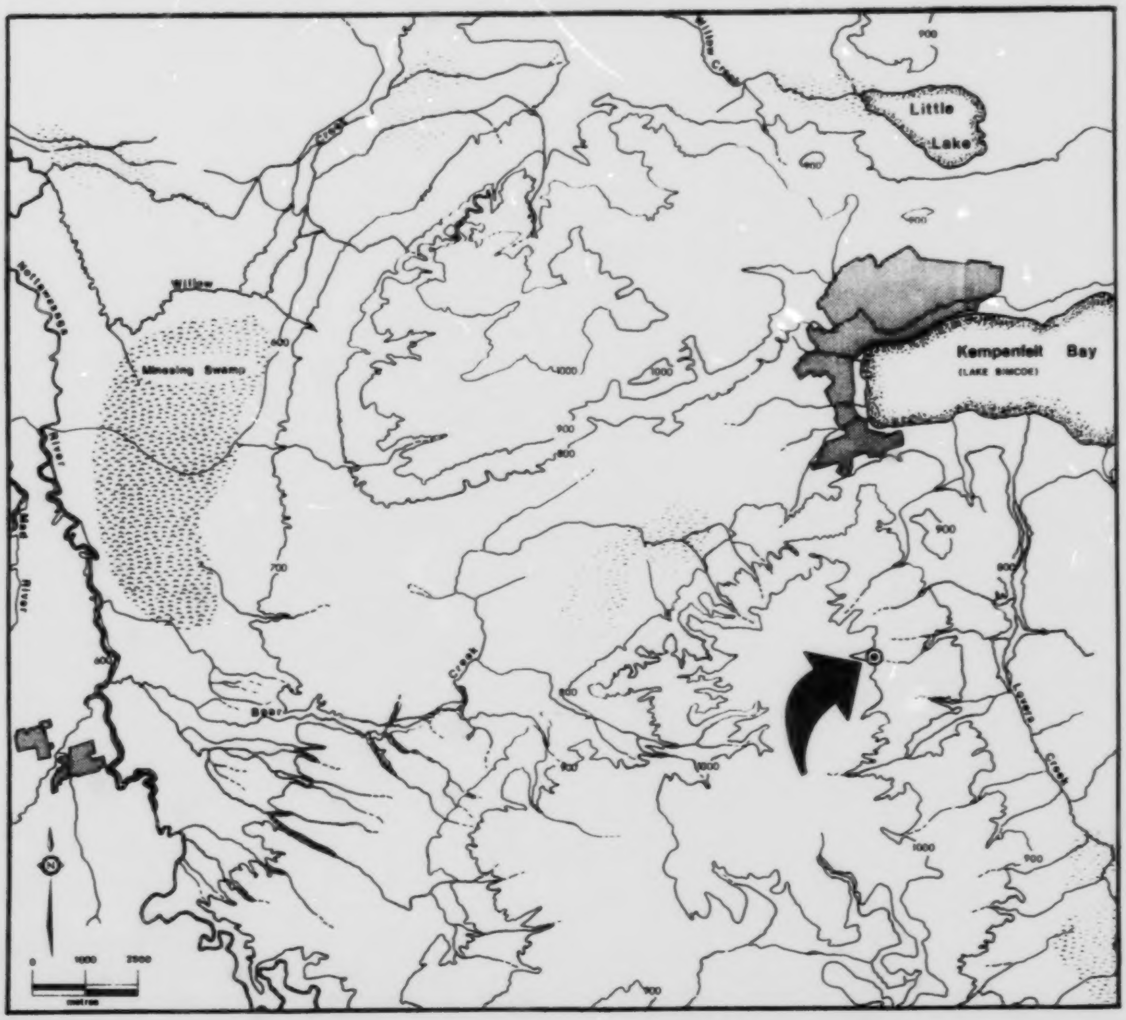

Willow Creek
900
Little
Lake
Creek
900
900
Nottawasaga
Willow
600
Minesing Swamp
1000
1000
Kempenfelt Bay
(LAKE SIMCOE)
900
800
River
Mad
River
700
900
800
600
Creek
Bear
800
1000
Lovers
Creek
1000
900
0
1000
2500
metres
900

Figure 1. Location of The Wiacek Site

Excavation Data Recovery and Provenience Designations

In this section the procedures utilized in excavating Wiacek are outlined and an attempt is made to provide some of the reasoning behind the application of these techniques. Provenience destignation coding as used in the text and in cataloguing the samples is also provided herein.

Upon arrival at the Wiacek site at the commencement of the spring survey, property bars, consisting of 1 inch square iron rods measuring 4 feet in length and driven into subsoil, had already been placed by Highway survey crews to identify the proposed property requirements. One of these bars, the first bar west of two bars identifying the northeast corner of the property line, and located 19.721 metres south of the centreline of Mapleview Road was used as the site datum. This bar may be relocated in the field, if the need should arise, through reference to property plan P-2756-103 and 101, on file with the property section, Ministry of Transportation and Communications, Southwestern Regional Office, London, Ontario.

Cultural materials recovered from the surface of the plowed site and the extent of midden areas were tied into datum using a transit and stadia rod. Isolated artifacts, located in this manner during the survey and excavations, were later provided with grid coordinates as described below and also bear the surface provenience designation "S". Materials surface collected from identified midden areas (M) were grouped as per midden area, each of which was assigned an alphabetic designation (A,B,C...). As such, isolated materials recovered from the site surface bear grid provenience designations following the Borden number (ie. 19S35E S) and surface finds from middens appear, for example, as M C (surface is implied unless a more specific designation follows). Materials recovered from disturbed contexts such as a bulldozed back dirt pile bear only the surface designation (S).

A topographic survey of the site and immediate area was also conducted during the spring of 1983. Our transit and stadia contour data were combined with details gathered from construction plans, aerial photographs and excavation data to produce Figure 2.

With the commencement of excavations in late July several 1 metre squares of plowzone were shoveled through 1/4" mesh screening as a test of plowzone artifact density. These test squares, which later proved to represent within-house and outside-of-house areas on the site, produced a handful of unanalysable microsherds and a few pieces of lithic debitage. On the basis of these findings combined with the fact that all of the area to be investigated had seen a lengthy history of plowing, and under the assumption that a village of this period would produce a considerable sample from the expected plethora of within-house features, it was decided to mechanically strip the plowzone over that part of the village to be impacted by construction.

The excavations thus proceeded with a bulldozer removing the bulk of the plowzone and a gradall removing the last 5 - 10 cm. to the plowzone-subsoil interface. This appears to be the most effective procedure for mechanical stripping under such circumstances. A bulldozer can quickly move a lot of material over long distances and its weight is well distributed on broad tracks resulting in virtually no damage to undisturbed cultural material due to compression. If, however, a bulldozer is used at the plowzone-subsoil interface the cleats on the tracks dig into the subsoil and can result in damage to undisturbed materials. This is avoided by the use of a gradall to remove the last 5 - 10 cm. of plowzone. The gradall can reach over the area being stripped and virtually shovelshine the excavations, removing the remaining plowzone and any ridges or windrows left by the dozer without risk of damage due to compression of the soil. The gradall moves less material over shorter distances but with the advantages of precision and that of remaining off of the work area thus having little effect on undisturbed cultural materials.

Once the area was stripped the datum was relocated and used as the origin (0N0E) of a North-South oriented excavation grid. This grid was extended across the area to be investigated and marked at 5 metre intervals by 2 x 2" wooden stakes. Each stake was provided with coordinates determined by their distance and direction from the origin. For example, a grid stake located 25 metres south of datum and 10 metres east of datum would bear the co-ordinates 25S10E. Reference to a particular 5 metre square unit was abbreviated by using the square's northwest coordinate such that a square bounded by coordinates, 10S0E, 10S5E, 5S5E and 5S0E was referred to as square 5S0E.

Once the plowzone was stripped and the grid in place we were faced with only one more problem before recording and excavating features - seeing them. It had not rained in the area for at least a month and dust bowl conditions which lasted the entire field season obliterated all but the darkest of features. At this point soil moisture was critical to continued work on this site and fortunately the problem was soon remedied by the recruitment of a 2000 gallon water truck, made available on a daily basis by the M.T.C. Barrie Patrol yard. The water was liberally applied having virtually no effect on the exposed features and after about an hour the moistened area was shovelshined and the now clearly defined features could be pinned for recording.

The location of features within an excavation unit was obtained using cross tape triangulation from two grid coordinates for mapping purposes. Post mould and feature data, such as location, length, width, depth, plan and profile shapes and drawings, feature orientation, nature of fill and artifactual inclusions, were recorded on preprinted forms for recording consistency.

All feature and selected post fill was screened using 1/4" mesh wire screening except bulk soil samples which were collected for flotation. Soil samples, totalling approximately 2 cubic metres, were collected to represent the range of feature types encountered. These were processed in a S.M.A.P. flotation device to facilitate the recovery of archaeobotanical remains and also to provide a sample of the smaller sized specimens that are normally lost by the 1/4" mesh screens. The heavy (non-floating) fraction was collected in a fine (2 mm mesh) screen for recovery of small faunal and artifactual debris.

All features excavated were provided with a feature (F) number. Outside-of-house features were numbered consecutively 1,2,3,... and all samples from these are catalogued F1,F2,F3,... Features from within each of House 1 and House 2 are also consecutively numbered but bear a house (H) designation, for example H1F21.

Post moulds from across the site which produced artifacts are provided with a consecutive number superseded by the letters PM. This is the only provenience designation for which the location of the unit of recovery cannot be obtained by reference to the site maps but must first be referred to an intermediary list.

In this manner the entire area of the Wiacek site that was to be impacted by construction was excavated. The same techniques were utilized to complete the excavations of House 1 and 2 areas that existed off of the proposed right-of-way.

During the excavations a considerable volunteer effort was focused on the excavation of parts of Midden E. This rounded out our ideas of settlement features at the site and increased our artifact sample considerably.

All Midden E materials were recovered from a disturbed plowzone context by shoveling the plowzone from 1 metre square units through 1/4" mesh screens. The 1 metre square provenience is referenced by the square's NW grid coordinates which run between 21 and 31 south and 12 and 17 west, (ie. 29S17W) and bear no catalogued references to Midden E.

The only other midden area excavated was Midden A. It is best considered as a shallow refuse filled depression which, as is suggested by the incorporation of 20th century debris into the fill, had been disturbed. This midden was small and no sub unit designations were assigned such that all materials from this feature are simply catalogued M A.

Environs

The area in the vicinity of the Wiacek Site may be considered with respect to two broad physiographic regions known as the Simcoe lowlands and the Simcoe uplands (Chapman and Putnam 1966: 299-313). The Simcoe lowlands include low areas bordering Georgian Bay and Lake Simcoe and which are joined to the north of the Wiacek site by a long narrow valley that extends westward from Kempenfelt Bay. The Simcoe lowlands were flooded by Glacial Lake Algonquin. As a result they are floored by sand, silt, and clay, and are bordered by shorecliffs, beaches, and boulder terraces. Northwest of the Wiacek site the Simcoe lowlands are marked by poorly drained lands of which the Bear Creek (Allendale marsh) and Minesing swamps are particularly noteworthy. The forest within the lowlands is characterized by such species as elm, black ash and soft maple.

The Simcoe uplands, which extend from south of Barrie north past Coldwater and onto the Penetang Peninsula, consist of a series of broad, curved, ridges separated by the Simcoe lowlands. These ridges were islands of Lake Algonquin and are encircled by numerous shorelines. South of Barrie, the Simcoe uplands or the Innisfil uplands are smoothed by sands and gravel, which are so permeable that streams are rare on the crowns of the uplands but springs issue from part way down the slopes to feed the permanent streams in the lowlands. In this manner the Wiacek site and a considerable area to the south is drained toward the east by numerous small tributaries of Lover's Creek which flows northward into Kempenfelt Bay. To the northwest a similar system of tributaries flow into the Nottawasaga River and then northward into Nottawasaga Bay (Figure 1).

The original forest on the Simcoe uplands consisted principally of hardwood species, chiefly sugar maple and beech, together with white pine. Yellow birch, basswood, and hemlock were also common.

The Simcoe uplands were a preferred location for Iroquoian settlements from at least Middleport times. The Innisfil uplands, or the southern portion of the Simcoe uplands, however, appear to have been virtually abandoned during the later part of this sequence in favour of the more northern environs known historically as Huronia. For further details regarding vegetation and physiography of the region from both an historical and ethnographic perspective see Heidenrich 1971.

CHAPTER II

WIACEK SETTLEMENT PATTERNS

Introduction

The focus of this chapter is on description of community patterns and analysis of artifact distributions. The excavation of Wiacek provides the first opportunity to examine a Simcoe County Middleport settlement; therefore the detailed descriptions of village and longhouse characteristics, presented in the first section of this chapter, are considered an important foundation for future comparative analyses of regional Middleport settlements. This is followed by an analysis of inter-site and intra-longhouse distributions of cultural material in an attempt to isolate activity areas and aid in the interpretation of refuse disposal patterns.

The Village

In the following paragraphs village characteristics are discussed. These attributes include site location, size and layout. In addition, exterior house post moulds and features are described.

Environmental Setting Wiacek is situated on a slight rise of land near the headwaters of a tributary of Lover's Creek, approximately four kilometres from Kempenfelt Bay (Figure 1). Wiacek is in the Simcoe upland physiographic region (Chapman and Putman 1966), a region of well drained sandy loam soil with good agricultural potential. According to Cleland's (1966) biotic provinces, Wiacek lies within the northern periphery of the Carolinian-Canadian transition zone. More specific environmental details concerning Wiacek during the period of occupation are presented in the chapters on faunal and floral remains.

Village Plan Based on topography, midden locations (Figure 2) and artifact surface scatter, Wiacek covers approximately 0.74 ha. The six middens located during survey appear to be situated along the periphery of the village: beyond the middens there is scant cultural debris.

Portions of five houses were uncovered during excavation; however, only House 1 and House 2 (Figure 3) were completely exposed. These two houses form the basis of the analysis to follow. A segment of House 3 (Figure 5, southwest corner) was revealed in an exploratory trench off the right-of-way during the final days of excavation. It was recorded but not excavated. House 4 (Figure 4, the westernmost) and House 5 adjacent to

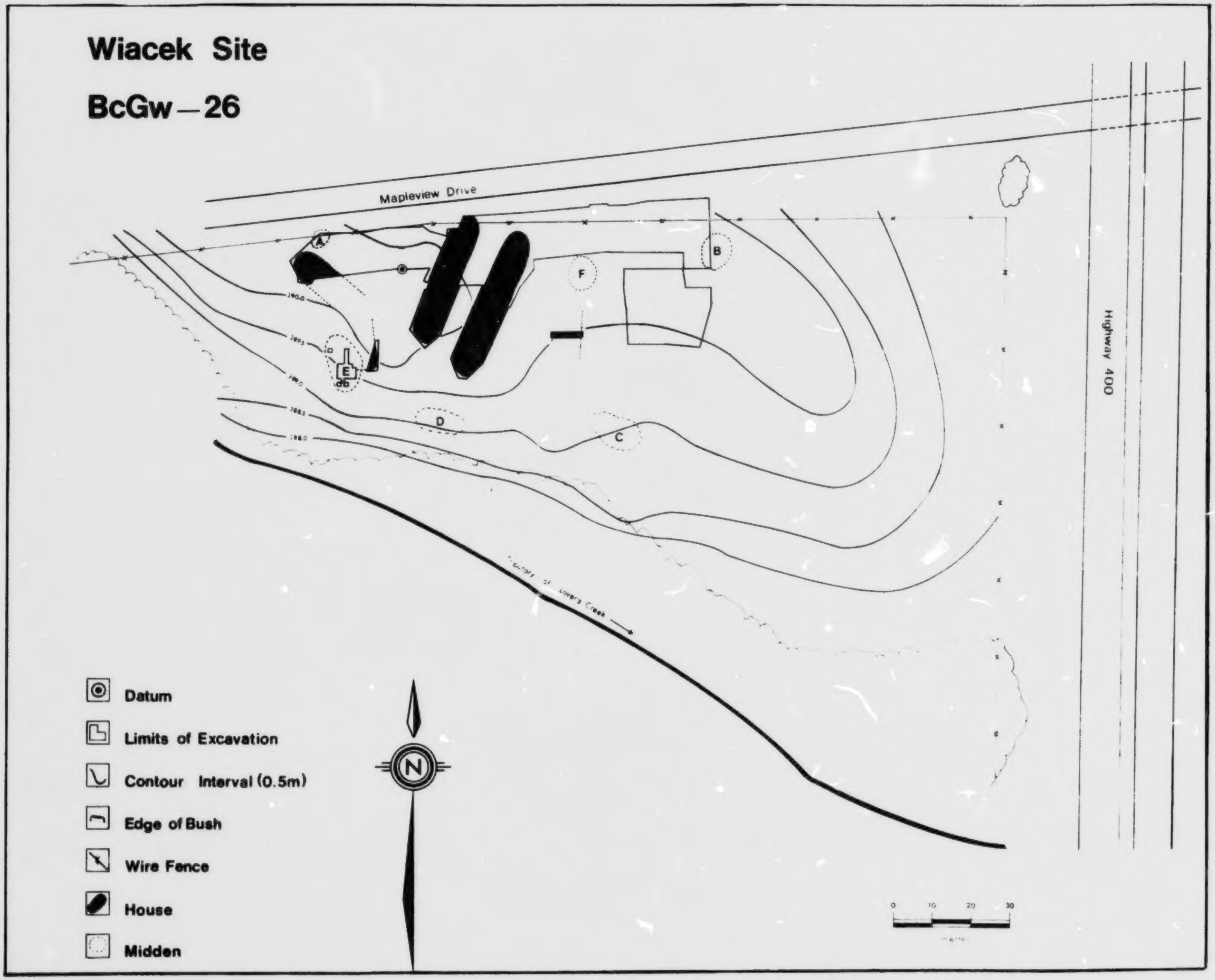

Wiacek Site
BcGw—26
Mapleview Drive
Highway 400
A
B
C
D
E
F
290.0
289.5
289.0
288.5
288.0
Tributary of Lovers Creek
Datum
Limits of Excavation
Contour Interval (0.5m)
Edge of Bush
Wire Fence
House
Midden
N
0
10
20
30

Figure 2. Site Topography and Limits of Excavation.

Midden E (Figure 4) are problematic - poorly defined and incomplete. In total, the village may have contained a maximum of seven houses. This figure is based on longhouse placement, topography and artifact surface scatter.

As Figure 2 illustrates, house placement appears somewhat "disordered" (as defined by Warrick 1984: 46); only Houses 1 and 2 spaced five metres apart, are aligned in a similar north by northeast orientation. House 3 is oriented north-south, House 4 north-northwest, and House 5 northwest.

Site Post Moulds A total of 590 exterior house post moulds were discovered during excavation; these few posts are mainly confined to the eastern portion of Wiacek (Figure 5). There is no apparent pattern to post placement that would aid in interpreting their function. No palisade posts were uncovered despite an extensive search.

Mean exterior house post mould diameter is 6.07 cm with a standard deviation of 0.6. Although posts range in size from 2 to 24 cm, the vast majority are less than 7 cm in diameter, as Figure 7 illustrates. Most post moulds were cross-sectioned to verify their authenticity, however, deep posts were often accorded a greater than depth only, thus biasing depth readings in favour of shallow posts. For this reason mean depth was not calculated. Post moulds range in depth from 1 to 32 cm below interface.

Exterior House Features All but one of 66 exterior house features are located in the eastern half of the village, beyond House 2. A complete record of feature statistics is provided in Appendix A, and summarized below in Table 1.

In order to neutralize the feature size bias, in the following tables feature contents are listed according to their density based on extrapolated feature volume (in the case of non-organic remains) or volume floated (in the case of organic remains). As organic remains were recovered almost exclusively through flotation, the density of floral and faunal remains is based on number of bone and carbonized plant and seed remains recovered per litre of feature soil floated. Although recovery of other cultural material does not appear to be as closely tied to the use of flotation, water screening does increase quantity of microsherds and microdebitage recovered. Thus artifact, pottery and lithic densities are based on amount per total feature volume, and microdebitage and microsherds are excluded.

Table 1. Exterior Features

Number		66
Volume, total litres		8,880.6
Volume floated, total litres		494
Type:	hearth	1
	refuse features	18
	other	47
Profile:	basin	46
	flower pot	4
	straight sides	4
	irregular	8
	unknown	5
Contents:	flora, per litre floated	0.87
	fauna, per litre floated	1.89
	artifact density	.0009
	pipe density	.0009
	pottery density	.0354
	lithic density	.0395

Features 8, 11, 12, and 13 overlap House 1 wall post moulds and therefore postdate house occupation; indeed, these may be historic disturbances since F12 contained a cow bone and H1F8, in the vicinity, contained one Henderson pipe stem and hewn wood.

Perhaps the strangest feature is F58, located near the eastern extremity of the village. This expansive pit contained a large quantity of pottery, two pipe bowls, one core, one utilized flake, some debitage, and a boulder. Its purpose is unknown.

The 18 "refuse" features (F26, 33, 38, 39, 43, 47, 49, 50, 52, 56, 60-2, 64-66) are located 17 metres or more east of House 1 (Figure 5). These features are characteristically broad but shallow (2-16 cm deep) with an irregular profile, and are composed of black oily soil intermixed with ash deposits capping a sterile leached podzolic base. Features of this type have been noted by Fitzgerald (1984). He suggests that they are natural depressions that have been used as garbage dumps, and indeed, at Wiacek, these features do contain a higher density of cultural material than other exterior house pits (Table 2).

Table 2. Exterior Feature Contents:
Refuse Versus Miscellaneous Pits

		Refuse	Other
Number		16*	46
Volume, total		2229.9	6627.2
Volume floated, total litres		188	190
Number of features floated		7	7
Contents:	Flora, per litre floated	2.29	1.27
	Fauna, per litre floated	1.81	0.23
	Artifact density	.0017	.0005
	Pipe density	.0013	.0008
	Pottery density	.0614	.0267
	Lithic density	.0147	.0077

* 3 of these features were represented by a leached podzolic horizon only and, therefore, are not included in the totals

Middens Five plough disturbed middens, lettered A through E, were mapped during initial survey of the Wiacek site (Figure 2); however, only Midden E, a shallow disturbed midden southwest of House 2, was extensively sampled. Contents of Midden E are summarized in Table 3; a full record of midden excavation results is presented in Appendix A.

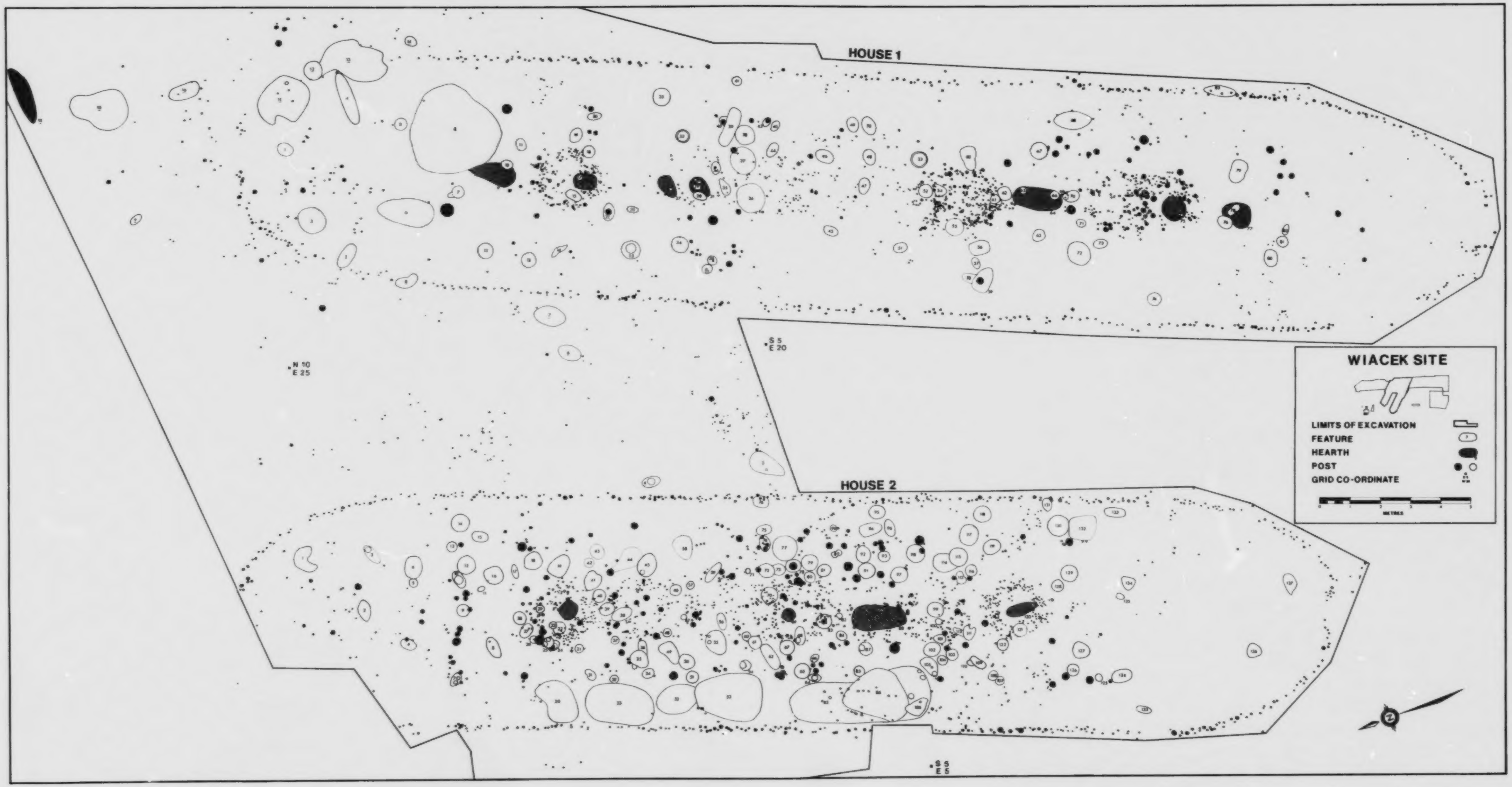
Table 3. Midden E Contents *

Number of excavated one meter squares	28
Volume, total litres	7,000
Volume floated, total litres	317
Contents:	
Fauna, per litre floated	1.53
Artifact density	.0014
Pipe density	.0090
Pottery density	.0236
Lithic density	.0473

* Floral remains were not analyzed due to the absence of undisturbed midden deposits.

In the next section external longhouse characteristics are described. This is followed by a more detailed discussion of interior house post moulds and features.

FIGURE 3
The Wiacek Site
Houses One and Two


HOUSE 1
HOUSE 2
S 5
E 20
N 10
E 25
S 5
E 5
WIACEK SITE
LIMITS OF EXCAVATION
FEATURE
HEARTH
POST
GRID CO-ORDINATE
0
1
2
3
4
5
METRES
N

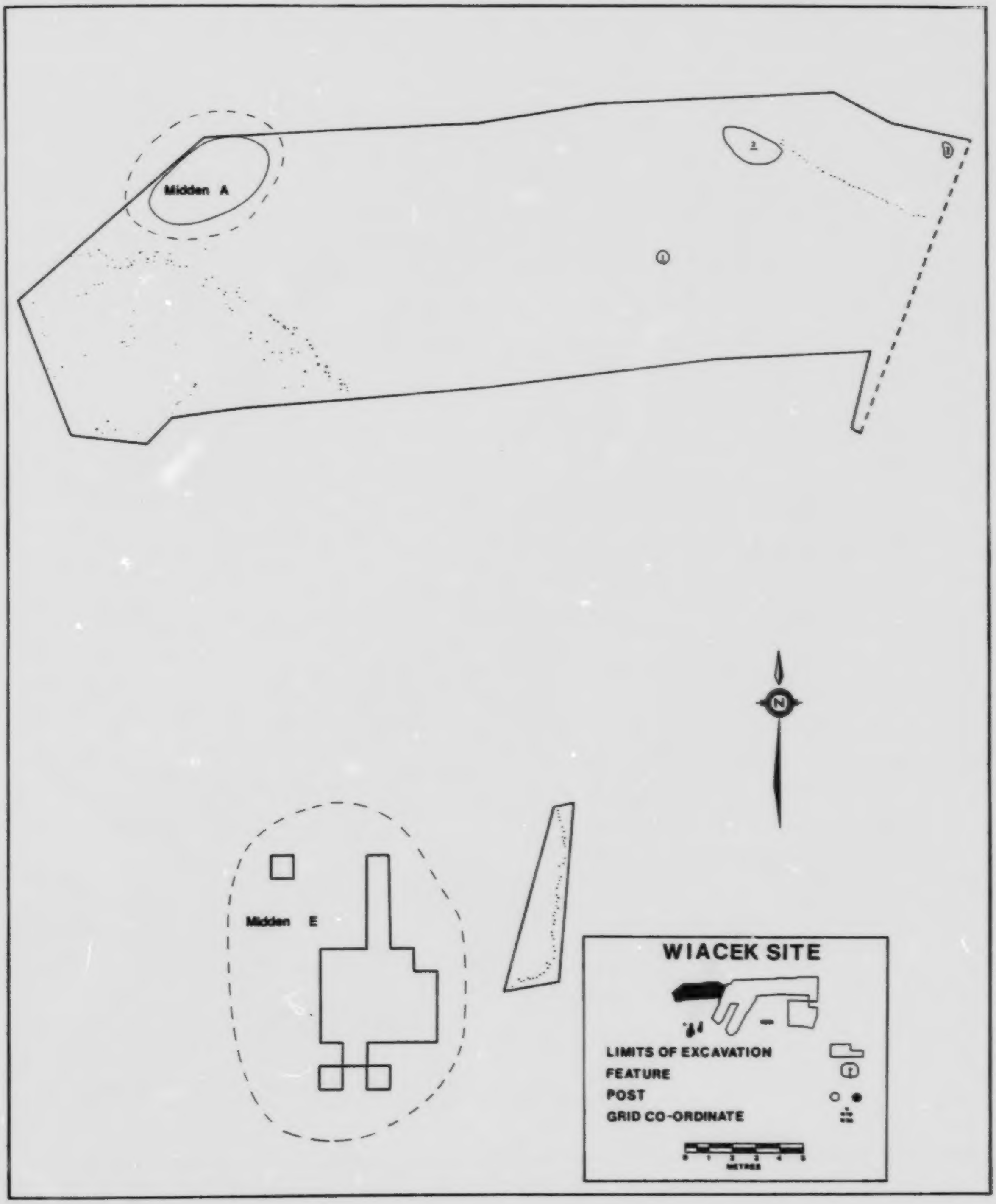

Midden A
2
11
1
N
Midden E
WIACEK SITE
LIMITS OF EXCAVATION
FEATURE
POST
GRID CO-ORDINATE
0 1 2 3 4 5
METRES

Figure 4. West Area of Excavation.

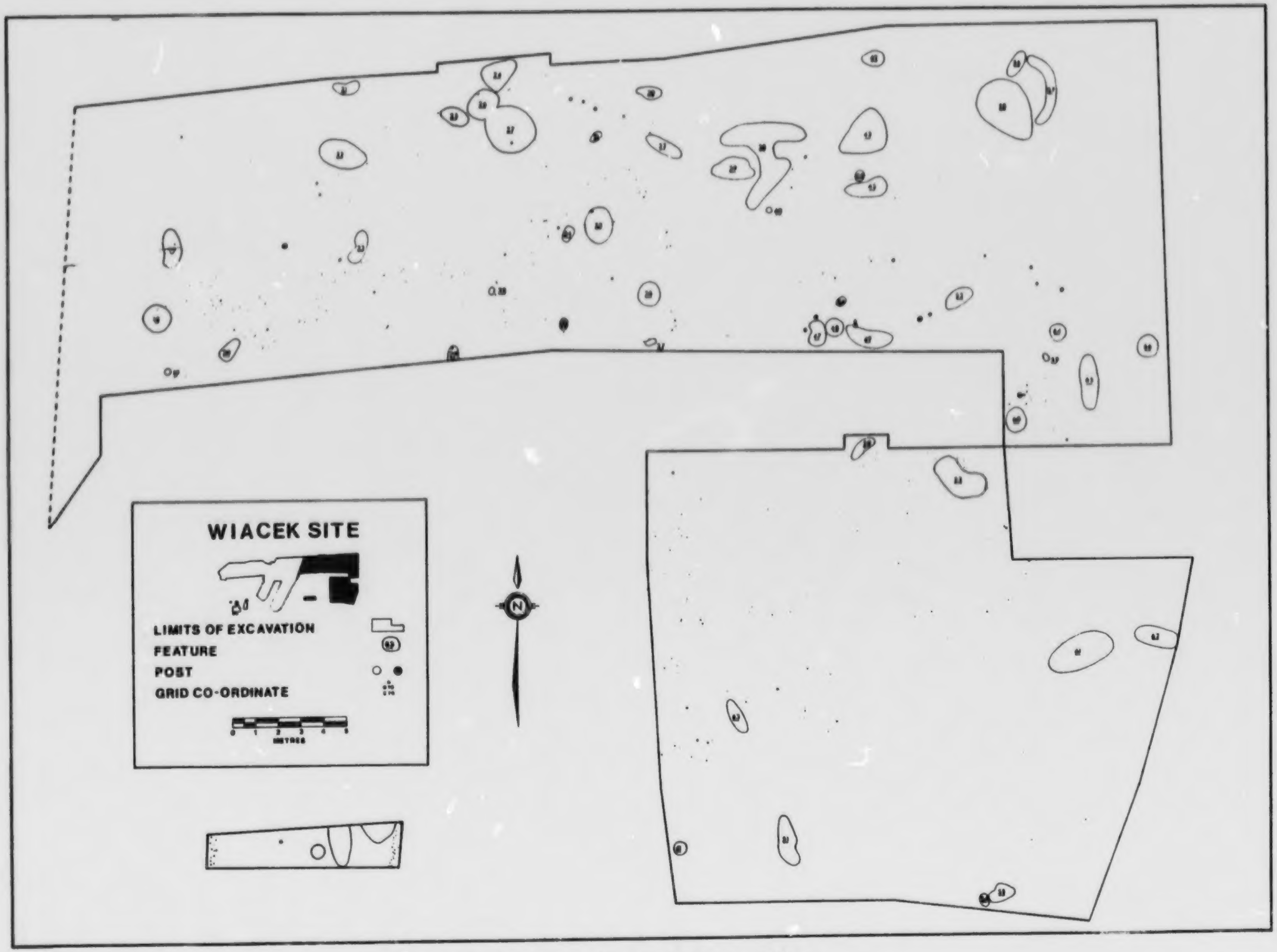

WIACEK SITE
LIMITS OF EXCAVATION
FEATURE
POST
GRID CO-ORDINATE
0 1 2 3 4 5
METRES
N

Figure 5. East Area of Excavation.

Wiacek Longhouses

Measurements of external and internal house dimensions are presented in Table 4.

As Table 4 illustrates, there are dissimilarities between Wiacek houses. House 1 is 5.6 m longer than House 2, and although they are both 7.5 m in width, the former has more space along the central corridor, but less possible end storage space.

On the following pages, internal characteristics of Houses 1 and 2 will be discussed in greater detail. Measurements of internal partitions are based on rows of large posts that partition the houses into four zones: end storage, bench, and, outer passageway and inner hearth zones of the central corridor (Figure 6). These partitions are somewhat arbitrarily defined (they are distinct in House 2 but difficult to discern in House 1) and may or may not reflect actual functional/structural uses . Nonetheless, they serve as useful partitions for comparative purposes.

Table 4. Longhouse Dimensions

	H1	H2	H3
External Dimensions:			
house length (m)	41.25	35.65	
house width (m)	7.50	7.50	7.70
mean taper length (m)	5.31	4.86	
Internal Dimensions:			
corridor length (m)	27.55	19.90	
mean end storage length (m)	6.75	7.58	
inner corridor width (m)	2.36	2.09	
mean outer passageway width (m)	1.15	1.14	
mean bench width (m)	1.33	1.46	

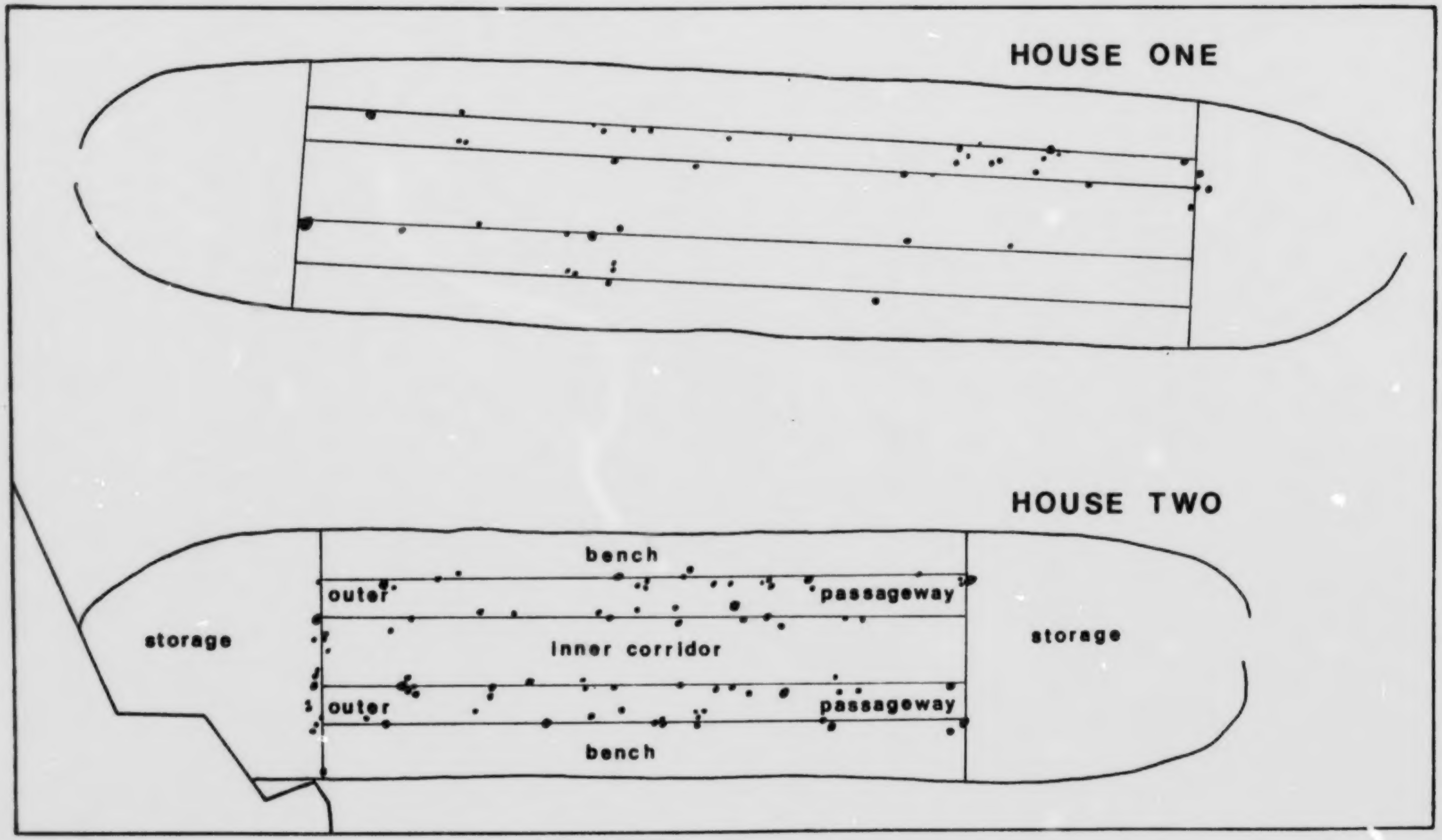

HOUSE ONE
HOUSE TWO
bench
outer
passageway
storage
inner corridor
storage
outer
passageway
bench

Figure 6. Interior House Organization.

House Wall Post Moulds Data for exterior wall posts of the five houses is listed in Table 5. Houses 4 and 5 are composed of smaller, more widely spaced posts than the other three houses. A graphic example of the disparity in house wall post size is illustrated in Figure 7, in this figure the size distribution for exterior miscellaneous posts, and House 1 and House 5 posts are displayed. The small size of House 4 and 5 wall posts and their wide spacing within the line suggest that these houses were not as well constructed; and, perhaps, represent short term occupations. However, it is equally conceivable that this deviation from the norm is due to the vagrancy of a small sample or due to the smaller wall post diameters toward house ends.

Table 5. House Wall Post Moulds

	H1	H2	H3	H4	H5
post density (per m)	5.50	6.85	8.12	4.83	3.40
post diameter (cm)					
n	459	476	32	54	78
$\bar{x}$	7.31	7.07	6.94	6.61	6.35
s	1.64	1.88	1.13	0.10	1.15
post depth, range	4-55	5-38		1-20	2-27

Interior House Post Moulds Table 6 presents summary data on interior house post moulds. The large number of post clusters undoubtedly accounts for the generally high interior longhouse post density.

These clusters, at least four in House 1 and five in House 2 (there may be more, although less clearly defined) are located along the length of the central corridor, either encircling or between hearths. They average two metres in maximum breadth and are composed of small posts, that appear to have been repeatedly removed and replaced (Table 7).

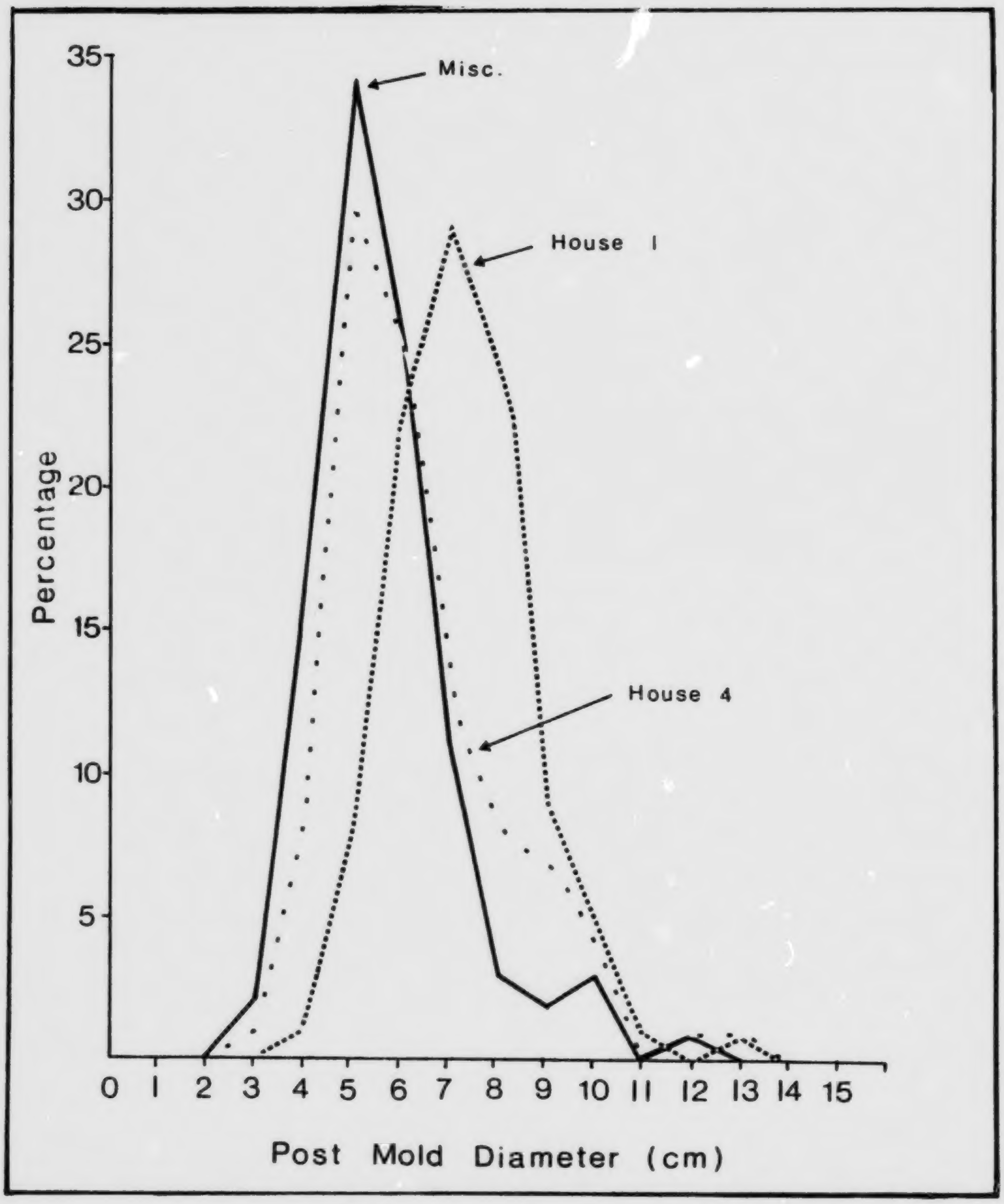


FIGURE 7.

House Wall and Outside-of-House Post Diameter Comparisons

Table 6. Interior House Post Moulds

	H1	H2
post number	1,116	1,354
post density, per m. sq.	4.01	5.64
post diameter (cm), $\bar{x}$	6.69	6.93
s	3.39	4.34
post depth, range	2-35	2-52

Post clusters are frequently considered to be evidence of sweat baths (Finlayson 1985), based on ethnohistoric descriptions of sweat lodges within Huron longhouses (Thwaites 1959:13:203, 38:253; Wrong 1939: 197); however, certain of these post clusters, particularly those enclosing hearths, may be evidence of smoking, drying, and/or cooking racks, also described in Jesuit narratives (Thwaites 1959:43:176).

Table 7. Post Clusters

	H1	H2
number of post clusters	4	5
width of post clusters (m), $\bar{x}$	2.00	2.10
s	0.09	0.14
spacing between post clusters $\bar{x}$	4.55	1.73
s	5.70	1.38
number of posts per cluster $\bar{x}$	175	155
s	64.63	40.45
diameter of posts in cluster (cm) $\bar{x}$	5.95	5.44
s	1.27	2.13
depth of posts in cluster (cm) $\bar{x}$	13.96	8.29
s	4.95	5.24

Staggered lines of post moulds divide the central corridor into an inner hearth zone, roughly two metres wide, and an outer one metre wide passageway. Both rows are composed of deeply set posts, averaging 22 cm in diameter (Table 8). The outer row of posts is thought to have supported platforms or benches; the inner row of posts may have provided roof support.

Continuous lines of bench and support posts are evident in House 2, but scarce in House 1, particularly along the west side. If these post moulds were not missed during excavation, then House One's roof was not well braced and platforms did not extend the full length of the corridor. Lack of bench or roof supports has been noted on other sites (Finlayson 1985, Latta 1985), and suggests that neither was an indispensable feature of longhouse construction.

Table 8. Support Posts

		H1	H2
Bench Line Posts:			
diameter (cm)	n	9	24
	x	22.65	21.21
	s	5.25	5.32
depth (cm)	n	7	12
	x	37.29	28.33
	s	12.08	13.21
Support Line Posts:			
diameter (cm)	n	9	22
	x	23.00	21.68
	s	8.14	5.30
depth (cm)	n	5	16
	x	39.00	38.81
	s	14.71	9.96

House Features Table 7 presents summary information concerning features of Houses One and Two. Detailed descriptions of feature dimensions and contents are provided in Appendices A and B.

Table 9. House Features

		House 1	House 2
Number		82*	137
Density, per meter square		0.30	0.57
Volume, total litres		2,520.00	8,313.3
Volume floated, total litres		422	992
Type:	ash pits	21	45
	hearths	7	4
	post pits	6	13
	storage pits	4	9
	other	44	66
Profile:	basin	48	63
	flower pot	19	27
	straight sided	14	37
	bell	0	4
	irregular	1	6
Contents:	Flora, per litre floated	3.17	6.62
	Fauna, per litre floated	9.81	15.44
	Artifact density	.0016	.0030
	Pipe density	.0020	.0027
	Pottery density	.0230	.0630
	Lithic density	.0218	.0231

*H1 F8 is considered an historic disturbance as it contained a clay ball pipe and hewn wood planks, and is excluded from the above totals.

Again, dissimilarities between House 1 and 2 are manifest. House 1 is longer, yet House 2 contains 55 more features, and more cultural and organic material than House 1.

Although House 2 has a greater total feature volume, both houses have similar relative frequencies of small, medium and large sized features (Table 10). However, the distribution of these feature size classes within the longhouses differs (Figure 8). Most small House 1 features are located within the central corridor, particularly in the inner corridor; larger pits are found in the northern storage area and in a line in the centre of the longhouse. Most small House 2 features are found in the outer passageway, and the largest features are located behind the western bench line.

Table 10. Feature Size Classes

	House 1		House 2	
	f	%	f	%
Small (1-30 l)	56	68.3	95	69.3
Medium sized (31-60 l)	14	17.1	25	18.3
Large (greater than 60 l)	12	14.6	17	12.4
Total	82	100.0	137	100.0

Each house includes hearths, ash, storage and post pits, but their proportional representation and placement within the two longhouses varies (Figure 9). The different feature types will be described in the following paragraphs.

Post Pits The term "post pit" refers to features containing large posts. Feature fill is usually indistinguishable from post fill, although in a few cases the post cuts through the feature. These pits are shallow, 5 to 22 cm in depth, with a flower pot or basin shape in profile. Post pits generally border inner and outer corridors, and were probably dug to help insert larger posts. House 1 has six such features and House 2 has thirteen.

Hearths Hearth number is variable, although House 1 is only five meters longer it has three more hearths than House 2. This is partially a result of the fact that hearth remnants - fire reddened soil and ash pockets - are often shallow and can be eradicated by deep ploughing. In an effort to ascertain if hearths were missed or destroyed, the distribution of fire reddened features and posts was plotted (Figure 10). The results indicate that features and especially posts, in both houses contain fire reddened soil not associated with mapped hearths, implying that, perhaps, each house contained at least one additional hearth.

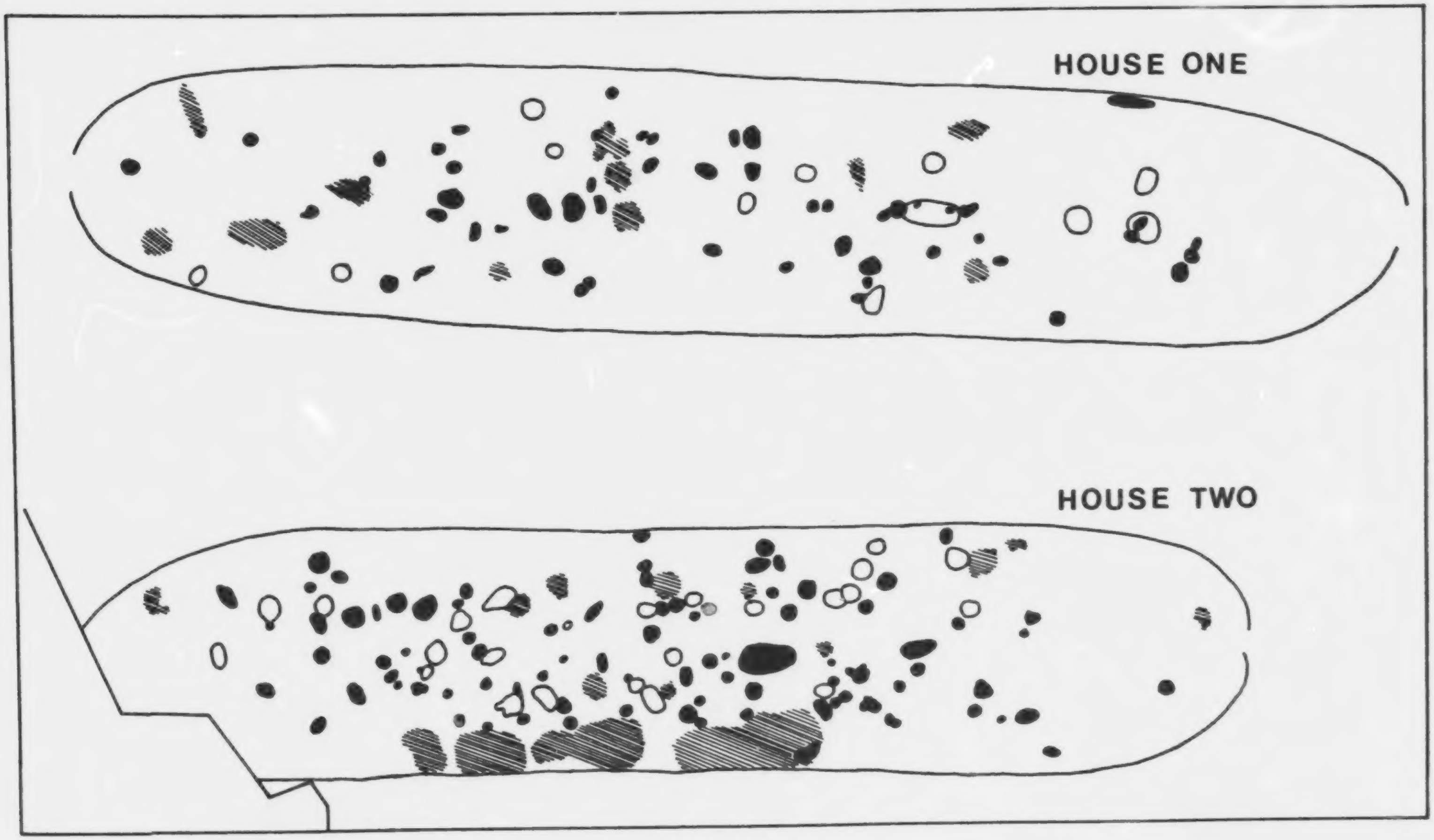

HOUSE ONE
HOUSE TWO

Figure 8. Distribution of Feature Size Classes

(Small 1-30 1. ● , Medium 31-60 ○ , Large 60+ ▨)

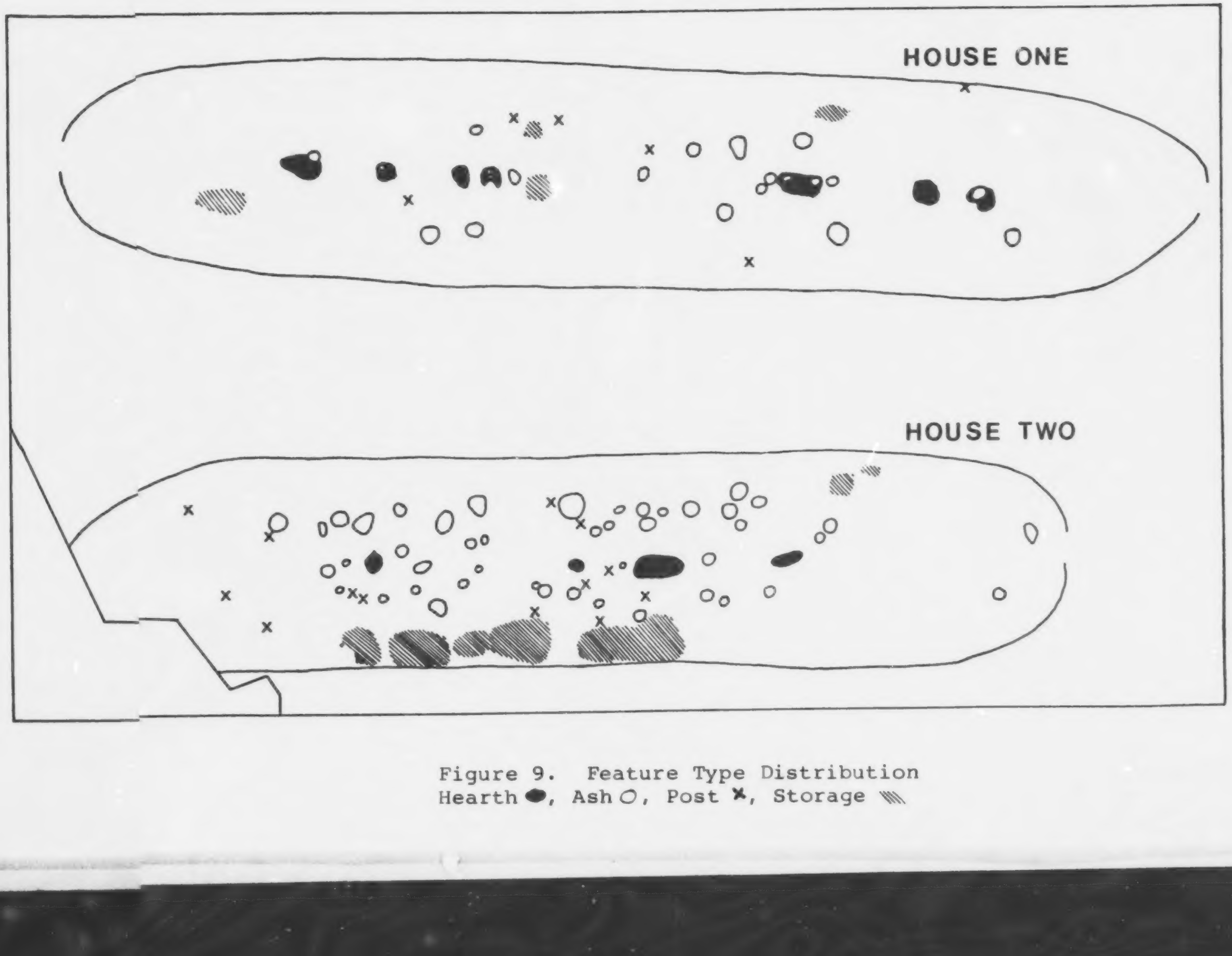

HOUSE ONE
HOUSE TWO

Figure 9. Feature Type Distribution
Hearth ●, Ash ○, Post ×, Storage ▨

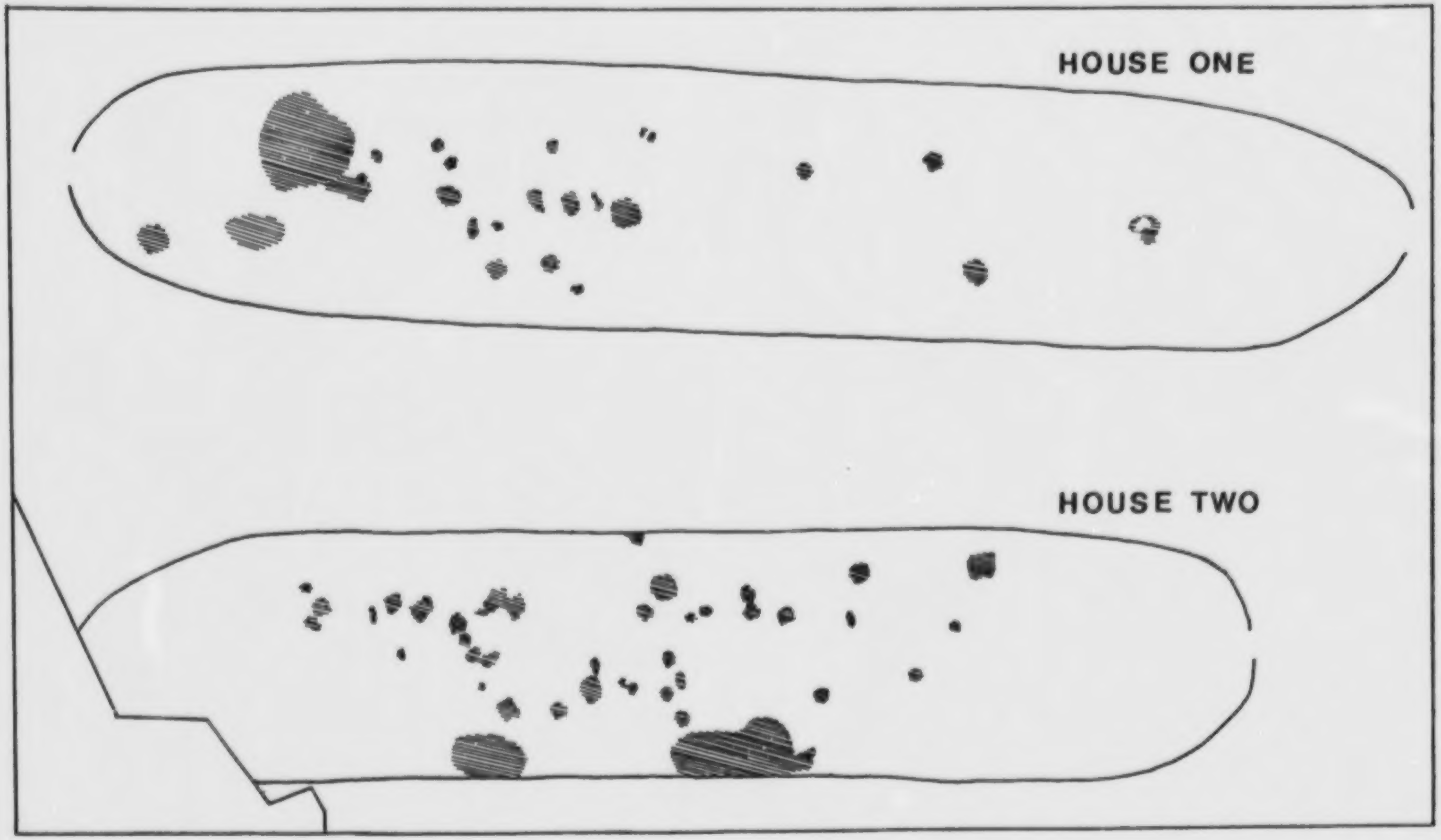

HOUSE ONE
HOUSE TWO

Figure 10. Distribution of Fire Reddened Soil
In Pits and Posts.

Hearths are virtually devoid of artifacts (Table 11), and the few carbonized plant and faunal fragments probably derive from ash lenses.

Table 11. Hearths

	House 1	House 2
Number	7	4
Spacing (m), mean	3.14	3.94
Volume, total litres	277.1	119.6
Number floated	4	1
Volume floated, total litres	41.5	18
Profile: basin	5	2
flowerpot	1	0
irregular	1	2
Contents: floral per litre floated	1.05	1.94
faunal per litre floated	10.69	4.67
artifact density	0	.0084
pipe density	0	0
pottery density	0	.0502
lithic density	.0072	.0251

Ash Pits Both houses contain a large number of pits with predominate ash matrices. The majority of ash pits have a basin or flowerpot shape profile (Table 12). Most of these features also contain flecks of charcoal (H1: 85.7%, H2: 80.4%) and fired soil (H1: 76.2%, H2: 53:3%).

Small ash pits, 5 to 12 cm in depth, are associated with central hearths; deeper ash pits, 15 to 45 cm, are generally distributed along the sides, in the outer passageway. Only three ash pits, all in House 2, are not located within the central corridor, two are in the southern storage end and the other, H2F117, is behind the eastern bench line.

Table 12. Ash Pits

		House 1	House 2
Number		21	45
Volume, total litres		589.1	1,428.1
Number floated		10	23
Volume floated, total litres		157.5	563
Profile:	basin	15	25
	flowerpot	2	2
	straight sided	8	14
	bell	0	3
Contents:	flora per litre floated	0.89	9.06 (2.26)
	fauna per litre floated	18.00	20.12 (18.36)
	artifact density	.0051	.0084
	pipes density	.0051	.0063
	pottery density	.0357	.1344
	lithic density	.0255	.0525

() figures in parentheses indicate floral and faunal counts for ash pits excluding H2F117

The only difference between ash pits of Houses 1 and 2 is in the quantity of floral remains. House 1 ash pits consist of few floral remains, on average only 0.89 fragments per litre of feature soil floated; whereas, House 2 ash pits contain 9.06 pieces per litre floated. This disparity is due, in large part, to the anomalous H2F117, which accounts for 65% of all House 2 flora - remove this feature and the results are similar to those obtained for House 1 (Table 12).

The composition of ash pits - ash matrices with fire reddened soil, and high densities of cultural and faunal material, implies that these features may be secondary hearth deposits. Debris from activities performed around hearths (i.e. cooking) may have been collected, along with excess ash, and disposed of in out-of-the-way features.

In order to test the validity of this assessment, the contents of other central corridor, storage and bench features were examined (Table 13). Ash pits contain larger quantities of faunal material per litre of flotation sample than other features. They also contain a greater density of artifacts and pipes per volume. However, floral, pottery and lithic densities do not follow this pattern.

Table 13. Miscellaneous Features by Location

	House 1	House 2
Central Corridor Features		
Number	29	39
Volume, total litres	555.2	917.4
Number floated	6	10
Volume floated, total litres	72	194
Contents:		
flora, per litre floated	2.60	2.86
fauna, per litre floated	5.29	15.59
artifact density	0	.0011
pipe density	.0036	.0011
pottery density	.0504	.1099
lithic density	.0342	.0360
Storage End Features:		
Number	6	14
Volume, total litres	153.1	310.4
Number floated	1	1
Volume floated, total litres	64	19
Contents:		
flora, per litre floated	2.44	1.05
fauna, per litre floated	3.17	5.16
artifact density	0	.0032
pipe density	0	.0032
pottery density	.0196	.0451
lithic density	.0588	.0097
Bench Line Features:		
Number	7	14
Volume, total litres	141.9	237.9
Number floated	1	1
Volume floated, total litres	17	15
Contents:		
flora, per litre floated	1.41	0.00
fauna, per litre floated	6.47	3.07
artifact density	0	.0084
pipe density	0	.0042
pottery density	.0141	.4792
lithic density	.0282	.0042

Using straight percentages of cultural material recovered from all house features, ash pits have greater percentages of the total artifacts (H1: 75%, H2: 48%), pipes (H1: 60%, H2: 41%), lithics (H1: 42%, H2: 57%), heat treated lithics (H1:50%, H2: 61%), and a moderate amount of the pottery (H1 and H2: 35%) recovereds from the houses. Thus the findings demonstrate that, in general, miscellaneous features contain less cultural material than ash pits.

Storage Pits Storage pits have been defined, arbitrarily, as features greater than 100 litres in volume. There are four such features in House 1; House 2 has nine (Table 14). The location of these large features is variable; in House 1 storage pits are located in the storage end and in the central corridor, in approximate centre, and in House 2, most of the storage pits are behind the west bench line. The general dearth of cultural material in these features suggests that, perhaps, they were covered and not utilized as secondary refuse disposal pits.

Table 14. Storage Pits

		House One	House Two
Number		4	9
Number floated		2	4
Volume floated, total litres		41	141
Contents:	flora, per litre floated	18.93	5.53
	fauna, per litre floated	3.32	0.65
	artifact density	0	.0013
	pipe density	0	.0013
	pottery density	.0036	.0200
	lithic density	.0109	.0131

Distribution of Cultural Material

In the preceding paragraphs house and exterior features were described according to type, and contents. In the succeeding paragraphs the density distribution of organic and cultural material from within houses features will be compared to midden and exterior house feature contents in an effort to discern patterns in refuse disposal, and possible activity areas.

Before discussing the results of this distribution analysis it should be stated that there are several factors limiting such a study. Wiacek is a ploughed site, and since the project operated as a salvage excavation, bulldozers were used to remove the disturbed overburden; therefore, any analysis of distributional patterns is restricted to midden and subsoil feature remains.

Although all features and some midden soil was screened through 6 mm mesh sieves, the overwhelming majority of organic material was recovered through flotation. Hence, the data base for analysis of organic distribution patterns is reduced to features and midden squares that had been selected for flotation and, unfortunately, features were not systematically sampled. For example, samples from House 1 diminish rapidly from north to south; and, there was a decided propensity for sampling ash pits over other types of features (undoubtedly based on the premise that ash pits were rich in organic remains). Storage and miscellaneous pits, especially those located in storage ends or behind bench lines, were infrequently selected for flotation sampling. These are major hinderances to analysis of distribution patterns; nonetheless there appear to be certain interesting results. These findings are discussed below under the headings: floral, faunal, artifact, ceramic, and lithic remains.

Floral Remains Although the greatest density of floral remains is found in large house pits, particularly those of House 2. This is an oversimplification - floral remains are found in vast quantity in only three features: H1F6, which contains 55% of House 1 flora; H2F33 and H2F117, which combined account for 71% of House 2 flora; and, F10, which contains 35% of all exterior house floral remains. Remove these four features from the totals and the distribution of floral remains across the site becomes remarkably even: 1.34, 1.96 and 1.23 floral fragments per litre for House 1, 2 and exterior house features respectively.

Two of the features containing large quantities of carbonized material are close to each other, H1F6 is located in its northern storage compartment and F10 is just north of the entranceway to House 1. Combined these two features account for 66% of all raspberry seeds recovered from Wiacek. It seems probable that raspberry harvests were dried for storage in this area, possibly near F15, an outdoor hearth. According to Waugh (1916) Historic Iroquois occasionally used fire to dry raspberries.

Like H1F6 and F10, H2F33 is a substantial feature containing an abundant quantity of carbonized plant remains, in this case corn and grass: virtually no faunal remains, sherds or detritus were recovered despite the fact that the feature was sampled for flotation. The large quantity of carbonized grass and corn suggests H2F33 was used to store dried corn harvests, the cleanliness of the feature indicates it was never used as a secondary refuse pit and probably remained covered throughout the time House 2 was occupied.

House 2 Feature 117 is unique in that not only does it contain huge amounts of carbonized corn and tobacco but also a high density of faunal remains of diverse species and two human teeth. It is probable that this feature represents the remnants of a feast, possibly associated with a burial or reburial ceremony.

Faunal Remains Unlike the general even spread of floral remains, the houses, notably House 2, contain the highest density of faunal remains for the site. This suggests that most of the activities involved with faunal species (i.e. cooking, eating) were preformed indoors and the residue scattered about the central corridor or purposefully deposited in ash pits (for a more detailed analysis see Chapter IV).

Artifacts House 2 contains the highest percentage (53%), and greatest density per litre of artifacts. These artifacts probably represent items that were being stored for future use (i.e. hammerstones, manos, scrapers) and implements broken either during manufacture or use (i.e. in hide or wood working) within the house.

One possible activity area is located in House 2 toward mid-centre of the longhouse. Three closely positioned features, H2F63, H2F67 and H2F68 each contain beaver incisor chisels. These may represent the clustered remains of a single (possibly specialized) artisan's tool kit.

Ceramics The highest frequency (63%) and greatest density of pipes are found in Midden E, the lowest frequency is in exterior house features and House 1. Within houses, the pipes are found predominately in central corridor features, notably ash pits.

The density distribution figures for pottery, as listed in Tables 9, 1 and 3 deal only with macrosherds: they indicate that the greatest concentration of rims and macrosherds is found in House 2. However, Midden E, which is composed mostly of microsherds (92%), probably as a result of plough breakage, has a much higher overall pottery density than either house.

The distribution of pottery within the houses is difficult to interpret. It does not follow either the floral or faunal pattern and is not the same between houses. Although in both houses there is a spread of pottery throughout, in House 1 most of the pottery is located within the central corridor, in House 2, features behind or in the bench line contain the highest density of pottery. This variance in within house pottery distributions may be due to reuse. Sherds from broken pots could have been used to shore up posts etc. thus dispersing sherds throughout the longhouse.

Lithics The greatest volume of macrodebitage, waste flakes, retouched flakes and cores is in Midden E. These results support conclusions reached by Lennox (1984 a, b). The distribution of microdebitage is fairly even between the houses (H1:0.2608 and H2:0.3267 flakes per litre) and Midden E (0.3912 flakes per litre). Therefore, it appears that much of the flint working was performed indoors, and, as is the case with pottery, most of the waste was deposited in the midden.

Also, similar to the pottery distribution, in-house lithic distribution is variable. In House 1 the highest density of lithics is in the storage ends; in House 2, ash pits contain the greatest volume of lithics.

Middleport Settlement Patterns

In the following paragraphs, the Wiacek village will be compared to other Middleport sites (or sites of comparable age). As yet there are few Middleport site excavations with community pattern data, so the comparison will be brief.

Middleport Villages Table 15 lists village attributes for Middleport (ca. 1300 - 1450 A.D.) sites in Simcoe County, and elsewhere in Southern Ontario. Site size estimates are generally only approximations based on midden locations and artifact surface scatter; with this caveat in mind, Middleport sites range in size from 0.4 to 3.2 ha, averaging 1.4 ha. Wiacek, which covers approximately 0.74 ha is, therefore, a small village. Although dictionaries define hamlets as small villages, in the archaeological literature "hamlet" frequently refers to a satellite community (Lennox 1984b); and, as there is no evidence to suggest Wiacek was associated with or dependent upon a larger village, the term will not be implemented here.

Table 15 demonstrates that high ground, arable land, and accessibility to water, often at the confluence of streams were common factors in determining village location during this period.

Wiacek was not palisaded, nor are palisades a feature of several other excavated Middleport sites. The lack of formalized house placement and absence of palisade implies that without constrictions imposed by palisades the need for structured village planning is removed. It also suggests village defense was not of paramount concern on these sites. Certain villages to the south have intricate palisade works (ie. Uren, Middleport), perhaps defense was a greater concern in the south or along frontier areas.

Table 15. Middleport Sites: Village Attributes

Site	Location	Site Size (ha)	Palisade	House Layout
Wiacek (BcGw-26)	sandy loam, upland, headwaters of creek	0.7	X	disordered
Sites Near Wiacek:				
Little (BcGw-15)[1]	upland, headwaters of creek	1.1	-	no settlement data
Hubbert (BbGw-1)[2]	above ravine, creek tributary	2.0	-	"
Sites In Simcoe County:				
Gervais (BcGw-5)[2]	beach terrace, creek tributary	1.6	-	"
Davis (BcGw-7)[2]	beach ridge, near creek	0.8-1.2	-	"
Cundles (BcGw-11)[3]	beach ridge, headwaters of creek	0.8-1.6	-	"
Hunters's Flos 9 (BdGx-7)[2]	--------	1.2	-	"
Beswetherick (BdGw-1)[3]	sandy ridge, near creek	2.8-3.2	-	"
Barrie (BcGw-18)[3]	sand terrace, near stream	0.8-1.2	-	"
Other Middleport Sites:				
Nodwell (BdHi)[4]	sand escarpment, near lake	1.0	p	aligned
Chypchar (AiGx-73)[5,14]	clay loam, level plain	0.4-0.8	X	disordered
Moyer (AiHc-2)[6]	ridge	0.6	P	disordered
Slack Caswell (AfHa-1)[7]	Norfolk sand plain, near creek plateau		X	only one longhouse

Table 15. (cont'd)

Unick (AiGx-11)[5]	sand terrace, adjacent to ravine	0.8	X	disordered
Chypchar 14, 19 (AiGx-73)[20,21]	level ground, clay loam soil, stream a 160 m away	0.6	X	disordered
Crawford Lake (AiGx-6)[8,13]	high ground, dry soil, overlooking lake	1.6	X	disordered
Edwards (AfHi-23)[9]	clay loam, near stream	2.8-3.2	X	no settlement data
Druholm (AfHi-22)[9]	clay loam, near stream	2.8-3.2	X	"
Willcock (AfHi-52)[17]	sandy knoll, beside pond	0.1	X	only one longhouse
Pond Mills (AfHh-2)[17]	soils vary from sand to clay, level ground adj. to Kettle Lake	0.4	-	no settlement data
Thomas (AkGt-3)[10]	plateau, creek tributary		-	"
Elliot (AkGt-4)[10]	clay loam, feeder stream		-	"
Pearse (AlGs-29)[18]	high hill with steep slopes, loam soil, brook ca 150 m away	1.8 - 2.2	-	"
Hoar (AlGs-71)[18]	high hill with steep N slope, loam soil, brook ca 150 m away	3.0	-	"
Peter Webb II (AlGs-73)[18]	slight rise, loam soil, east side of Duffin Creek tributary	1.2	-	"
Milroy (AlGt-1)[10]	plateau, tributary stream		-	"
New (AlGt-36)[10]	plateau, near stream		-	only one longhouse
Robb (AlGt-4)[10]	clay loam, upland, near creek	1.2	-	no settlement data
Middleport (AgHa-2)[12,11]	sandy, near river	0.4-1.2	P	

Table 15. (cont'd)

Metcalf (AfHk-7)[15]	sandy loam, knoll, headwaters of creek	3.2	-	no settlement data
Uren (AfHd-3)[16]	sandy, ravine edge near tributary	1.1	P	aligned

Abbreviations:
X No palisade post moulds discovered,
- unknown,
P palisade

Information extracted from:

1. Lennox pers. comm.
2. Hunter (1976)
3. Hunter (1978)
4. Wright (1974)
5. Finlayson et al (1976)
6. Wagner (1973)
7. Jamieson (1979)
8. Finlayson and Bryne (1975)
9. Pearce (1982)
10. Kapches (1981)
11 Noble (1975)
12. Wintemberg (1948)
13. Finlayson (1984)
14. Finlayson (1983)
15. Hagerty pers. comm.
16. Wright (1979)
17. Poulton (1985)
18. Poulton (1979)
19. Finlayson & Smith (1981)

Middleport Longhouses In comparison to other stages of the Ontario Iroquois Tradition, Middle Ontario Iroquois longhouses are characteristically long, with tapered ends and contain numerous post molds and features (Dodd 1984). These attributes suggest that Middleport houses were occupied for an extended period of time, perhaps during a period of stability.

Wiacek longhouses conform to this pattern. House length and width measurements are similar to contemporaneous longhouses, being only slightly wider and having a greater possible end storage capacity than other houses of this time period.

Internally, Wiacek houses have a high feature density: House 2 matches the average of 0.57 features per metre square for Middleport houses in general, House 1 feature density is slightly below the norm. Post density is higher than the average of 2.07 per metre square recorded for other Middleport houses in general. The large number of post clusters may explain this higher post density.

Conclusions

The Wiacek site, like other Middleport villages, is situated on arable ground near the headwaters of a tributary. The village is small and unprotected; longhouses are widely spaced and variously oriented. Wiacek, like several other Middleport sites, lacks both the intricate fortification and narrow confinement of protohistoric and historic Huron villages.

In addition, Wiacek longhouses are typical of the Middle Ontario Iroquois period in that they are long and "cigar" shaped dwellings outlined by tightly spaced wall posts and contain the highest feature and post mould density of Iroquois tradition longhouses. High post and feature density suggest that Wiacek was occupied for an extended period of time. The absence of palisade and the general disordered placement of longhouses implies that Wiacek was occupied during a period of stability.

A comparison of the two completely excavated Wiacek longhouses indicate both similarity and diversity. There is little deviation in the method of construction of the longhouse framework; both houses are roughly equal in size, shape and composition of house wall posts. Internal construction of House 1, however, differs from House 2; the former does not have continuous rows of bench and roof support posts.

The most obvious disparity between Houses 1 and 2 is in feature number, the latter has 48% more features. In addition, House One features contain a lower density of cultural material. The lower density of floral, faunal, pottery, artifact and pipe remains signify that House One was occupied for a shorter duration. There is no evidence to infer that a fire caused the abandonment of House 1; there were no fire reddened wall posts (although ploughing could have destroyed these), and no concentrations of fired ceramic waste or luxury items.

Both houses have similar relative proportions of feature sizes and feature types; however, their location within the longhouse is variable. House One "storage" pits are located in the northern storage end and central corridor, near midline; House 2 "storage pits" border the west sidewall. The combination of bench line storage pits and a well defined bunk line in House 2 in contrast to the opposite pattern in House 1, may suggest alternate utilization of bench zone floors in House 1 - perhaps as sleeping areas. Ash pits are situated, almost exclusively, in the central corridor. Their matrices and contents suggest that they are secondary hearth deposits.

Hearth number and hearth spacing are erratic variables. House 1 contains three more hearths than House 2, although House 1 is only five metres longer. It is suggested that through continuous occupation, hearths "travel" and, ploughs remove all but the deepest parts of hearths; therefore, what was, on the living floor, one hearth may appear as two distinct hearths in subsoil. Further, hearths can be completely destroyed by plough action; indeed, if fire reddened posts are hearth indicators, then each house may have contained at least one additional hearth. Given these inconsistencies, it is inappropriate to extrapolate longhouse populations based on hearth number (assuming the Jesuit observation of two Huron families per hearth to be analogous).

Analysis of density distributions of organic and cultural materials revealed some patterns that should be further tested. General intra-site comparisons provided the most information, the more specific inter-longhouse distributions were subject to variability. Floral material is evenly dispersed across the site. Only four pits contain an inordinate amount of carbonized plant remains: H1F6 and H1F10 are considered to have been the locale for drying and possibly storing raspberries; H2F33 was probably a corn storage pit and H2F117 contains what may have been the residue of a ceremony or feast, possibly associated with burial rites.

Unlike the even dispersal of flora, faunal remains are located predominately within the houses, along the central corridor. It would appear that activities involved in food preparation were preformed indoors and the resulting leftovers were deposited in ash pits or swept into open pits within the central corridor.

The majority of artifacts were also found in houses - notably House 2. This suggests that activities involving artifacts (i.e. working hides, flint knapping, playing games etc.) were performed, and implements stored, indoors. Broken pipes, sherds and waste flakes, however, were gathered from the living floor and redeposited in the midden. The distribution of these items within the longhouse is erratic, and varies between houses. Although pipes, pottery and lithics are found in large numbers in central corridor features, especially ash pits, they are also found in storage end and bench features.

Chapter III

ARTIFACT ANALYSIS

Introduction

This chapter is concerned with the description, analysis and interpretation of the 6120 pieces of cultural material recovered from the Wiacek site. In the following section, the assemblage will be discussed according to broad artifact classes based on materials of manufacture. Within these classes specimens are grouped according to morphologically and presumably functionally similar artifact types. Table 16 presents a breakdown of the Wiacek assemblage into analytic classes based on material types while similar tables, appearing in the introduction to each class, provide a further breakdown of the artifact class into its constituent artifact types. Discussion of the analysis follows each descriptive section.

As noted in Table 16, two artifact class frequencies (f_1 and f_2) are presented. These are meant to provide an appreciation of the effects of sample collection techniques and reporting on artifact frequences. While f_2 represents the total Wiacek site artifact count, f_1 eliminates factors that have tended to disproportionately inflate the ceramic and lithic class frequencies. For example, the f_2 ceramic class is heavily inflated by the inclusion of 3335 unanalysable sherds, most of which are microsherds that are attributed to the 1/4" mesh screening of midden E, a refuse deposit that was entirely incorporated into the plowzone. The f_2 lithic class is likewise inflated by the inclusion of 638 pieces of microdebitage, most of which is attributed to the heavy fraction of the flotation samples. Given these factors a hypothetical f_3 can be envisioned based on either more extensive midden excavation or flotation sampling.

Table 16. Wiacek Artifact Classes.

Class	f_1	%	f_2	%
Ceramics	1332	62.0	4667	76.3
Lithics	790	36.8	1428	23.3
Worked Faunal Materials	25	1.2	25	0.4
Total	2147	100.0	6120	100.0

f_2 = total artifact sample
f_1 = f_2 - (ceramic microsherds + lithic microdebitage)

Ceramics

Introduction

As is the case with most Woodland sites in Huronia, ceramics account for the largest part of the Wiacek assemblage (Table 16). Pottery is the principal component of the ceramics from Wiacek and judging from the rim sherds roughly 125 vessels are represented. Pipe fragments make up the second major portion of the Wiacek ceramic assemblage and while represented by far fewer fragments (Table 17), the pipe bowls and bowl fragments indicate that approximately 65 pipes are represented in the collection. A ceramic vessel to pipe ratio of approximately 2:1 is thus represented.

Table 17. Wiacek Ceramics.

Item	f	%
Pottery*		
Body sherds	709	53.2
Shoulder sherds	97	7.3
Neck sherds	202	15.2
Rim sherds	167	12.5
Juvenile	27	2.0
Pipes		
Stems	52	3.9
Bowls	71	5.3
Ceramic Waste	7	0.5
Total	1332	99.9

*Excluding 3335 unanalysable and microsherds

Pottery

Body sherds

A total of 709 analysable body sherds were recovered from the Wiacek site. Exfoliated body sherd exteriors that were large enough for surface treatment identification were considered analysable though they obviously could not be used in the examination of body sherd thickness. Another 3335 micro sherds were too small for surface treatment identification and these were deemed unanalysable. Over half were recovered during screening of the plow-disturbed Midden E deposit and many were recovered from the heavy fraction of the flotation samples. The following discussion considers body form, temper, thickness, surface treatment and decoration.

Form Without large vessel sections it is difficult to discuss body form with specific reference to the Wiacek assemblage. Discussions of vessel form for Middleport period assemblages reported in the literature indicate that elongated globular to globular forms are the norm. Two small fragments from small but well made vessels indicate the presence of a rare flat bottomed form at Wiacek. One is plain while the other vessel was decorated with parallel oblique (likely opposed) incised lines.

Temper All but a very few of the Wiacek sherds contain tempering consisting of crushed granitic materials. The tempering particles average between 1 and 2 mm and range occasionally up to 8 mm in diameter.

Thickness Body sherd thickness ranges in a unimodal normal distribution from 3 to 15 mm with a mean of 7 mm. Several thick sherds stray erratically beyond 15 mm and one "megasherd" measuring 29 mm in thickness was recorded. Body sherd thickness does not significantly vary according to surface treatment.

Surface Treatment Following the increase in plain vessel surfaces from Middleport to Late Prehistoric ceramics the Wiacek assemblage exhibits predominately plain body sherds (78.1%) followed by ribbed paddle (19.7%). The remaining sherds are accounted for by the rare occurrence of smoothed-over-cord and check stamped surface treatments (Table 18).

Table 18. Body Sherd Surface Treatment.

Surface Treatment	f	%
Plain	554	78.1
Ribbed Paddle	140	19.7
Smoothed-over-cord	9	1.3
Check stamped	6	.8
Total	709	99.9

Decoration Decorated vessel body surfaces are rare at Wiacek accounting for less than 1% of the assemblage. Trailed parallel lines are the most common decorative elements and, in two instances where the motifs are identifiable, the elements form triangular plat motifs.

Shoulder Sherds

Ninety-seven shoulder sherds representing 71 vessels from Wiacek exhibit both round and carinated forms (Figure 11). Plain vessel shoulders account for 62% of the sample and these are proportionally distributed between the two forms noted above.

Shoulder decoration consists of simple impressed and/or trailed motifs as indicated in Figure 11, where their association with shoulder form is also provided.

The small number of shoulder sherds compared to neck or rim sherds represented in the Wiacek sample is attributed to their predominately rounded form and undecorated surfaces. Such shoulder sherds are difficult to distinguish from body sherds and this has no doubt resulted in an under representation of plain rounded shoulder sherds in the sample.

Figure 11. Wiacek Shoulder Sherds.

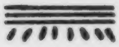
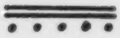
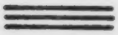
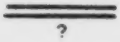
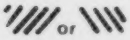
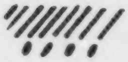
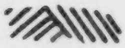
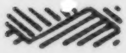
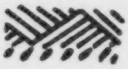
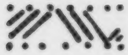
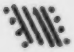
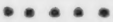
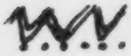
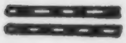
Decoration*	Form		Total	
	Round	Carinated	f	%
Plain	40	4	44	62.0
╱╱╱╱╱	11	2	13	18.3
╲╲╲╲╲	2	0	2	2.8
│││││	2	0	2	2.8
━ ━ ━	1	0	1	1.4
● ● ●	3	2	5	7.0
╱╱╱╱╱ ╱╱╱╱╱	1	0	1	1.4
═════ ╱╱╱╱╱	1	0	1	1.4
═════ ‹‹‹‹‹	1	0	1	1.4
═════	0	1	1	1.4
Total	62	9	71	99.9

*Decorative Techniques. Impressed ╱│●, Trailed ─── .

Neck Sherds

The Wiacek Site neck sherd data were obtained from 202 isolated neck sherds and 92 necks associated with rims. Particularly noteworthy with regard to this analysis is the zoning of neck area decoration. Where neck decoration occurs it is usually on the upper portion of the neck area while the lower portion of the neck is often left plain. The proportion of neck decorated vessels is therefore best expressed by the rim associated neck sherds (63% decorated) as opposed to the isolated neck sherd fragments (25% decorated) (Figure 12).

Figure 12. Wiacek Neck Sherd Decoration.

Decoration*	Isolated Neck Sherds f	Isolated Neck Sherds %	Neck Sherds Associated with Rims f	Neck Sherds Associated with Rims %	Total Sample f	Total Sample %
Plain	152	75.2	34	37.0	184	62.6
	12	5.9	15	16.3	27	9.2
	2	1.0	0	-	2	.7
	2	1.0	12	13.0	14	4.8
	9	4.5	23	25.0	32	10.9
	9	4.5	1	1.1	10	3.4
	3	1.5	0	-	3	1.0
	4	2.0	2	2.2	6	2.0
	4	2.0	2	2.2	6	2.6
	2	1.0	1	1.1	3	1.0
	1	.5	0	-	1	.3
	1	.5	0	-	1	.3
	1	.5	0	-	1	.3
	0	-	1	1.1	1	.3
	0	-	1	1.1	1 2	.3 .7
Total	202	100.1	92	100.1	294	100.4

*Technique. trailing — / , stamping / • \ , drag stamp ▬.

With regard to the decorated sherds, horizontal neck motifs at Wiacek are most popular, and as can be seen from the rim sherd analysis, these are often a carry over from the rim motif. The technique of decoration is trailing except for one instance where horizontals are executed by a drag stamp or push pull technique. Approximately 75% of the horizontal neck motifs are underscored by linear or circular impressions (Figure 12). An additional motif category consisting of fragmented neck sections does not allow observation of these secondary decorative elements and appears with a "?" below the horizontals in Figure 12.

Another major group of neck motifs are composed of parallel oblique lines which are often combined into opposed obliques or opposed triangles. Variation on this theme, as well as the remaining motifs, are shown in Figure 12.

Rim Sherds

All inclusive, the Wiacek site rim sherds number 194 specimens. Following the mending and matching of rims representing the same vessel, the segregation of juvenile vessel fragments (27), castellated rim sherds that were too restricted to be used to obtain rim sherd data (9), and unanalysable rim sherd fragments (39), we are left with an analysable vessel count of 94. These have been classified, principally using MacNeish's (1952) typology to allow comparison with other assemblages across the province, and rim attributes have also been made available should these be required for a more extensive examination of the Simcoe County focus at some future date. The castellations and juvenile ceramic data are dealt with following the analysis of vessel rims.

The method of analysis of the Wiacek site rim sherds is principally that outlined and defined by MacNeish (1952). The typological approach is preferred in this analysis because the comparative data from other Middleport sites elsewhere in the province are available in this format while attribute analyses are lacking. At the same time, the merits of the recent type versus attribute controversy are acknowledged (cf. Wright 1966,1967,1974, 1980; Pratt 1960,1976) and it is felt that attribute data should also accompany analyses at this "transitional stage" particularly if one's data are intended for use by future researchers. As such, while relying on the typological approach for comparative purposes, the intent here is to remain explicit in the typological classification of rim sherds. Fortunately the task is simplified, or is at least made manageable by the restricted yet respectable Wiacek vessel count.

In this section the Wiacek rim sherds (vessel rims) are described with reference to their type definitions. All of the Wiacek site rim sherds are illustrated, showing stylized motif and technique of decoration with associated profile shown to scale (Figure 13). Here the variation within and between the type definitions as interpreted in this analysis may be realized and secondary modifications noted. In the few instances where 2 sherds were identical with regard to motif, technique, profile and metrics but varied enough to suggest that separate vessels are involved, a 2 is placed to the left of the rimsherd illustration in Figure 13 to save space and to avoid excessive repetition. The type definitions provided below generally follow from early to late as in Figure 13. Table 19 summarizes the results of the typological analysis.

Ontario Oblique (1) A single example of this type recovered from the Wiacek site follows MacNeish's definition closely. Diagnostic features of the type include "Bands of oblique lines either parallel or opposed on the neck and rim on globular-bodied vessels" (MacNeish 1952:18). Rims are outflaring and are usually without a collar although collared variants do occur rarely during Middleport times.

"The ware is dominant in Uren times but lasts until Middleport times" (ibid.).

The single Wiacek example (Figure 29:1) is considered a late occurrence of the pottery type. Its low frequency, incipient collar, and the restricted vertical extent of the motif is as expected for this period.

Iroquois Linear (2) Two Wiacek rims were classified as Iroquois Linear principally on the basis of exterior motif and technique following the type definition, however, contrary to this definition the Wiacek examples are collarless and outflaring. According to MacNeish, diagnostic features of the type include "decorations of parallel horizontal lines of overlapping linear punches (push-pull or drag stamp) on short to medium high, poorly defined collars" (MacNeish 1952:19). This pottery type according to Wright "is widely spread throughout the Iroquois culture area and survived for only a short time. Iroquois linear is a dominant late Pickering branch and early Middle Ontario Iroquois stage pottery type" (1966:43-44). The presence of Iroquois Linear pottery at Wiacek is also considered a late occurrence of the type.

Ontario Horizontal (7) Diagnostic features of this type include horizontal lines on short channelled collars (MacNeish 1952:16). In addition it is noted that early variants often have vertical or oblique gashes above and/or below the horizontal lines while late types are more inclined to have ovoid notches at the base of the collar. Necks are weakly constricted and collar development is more pronounced in later times (ibid.). Wright regards Ontario Horizontal as predominately a Middle Ontario Iroquois stage type (1966:43). It does, however, extend temporally into earlier Pickering but not Glen Meyer Branch sites and the later Huron, Petun Branch as well as Neutral and Erie Branch sites although its presence is rare.

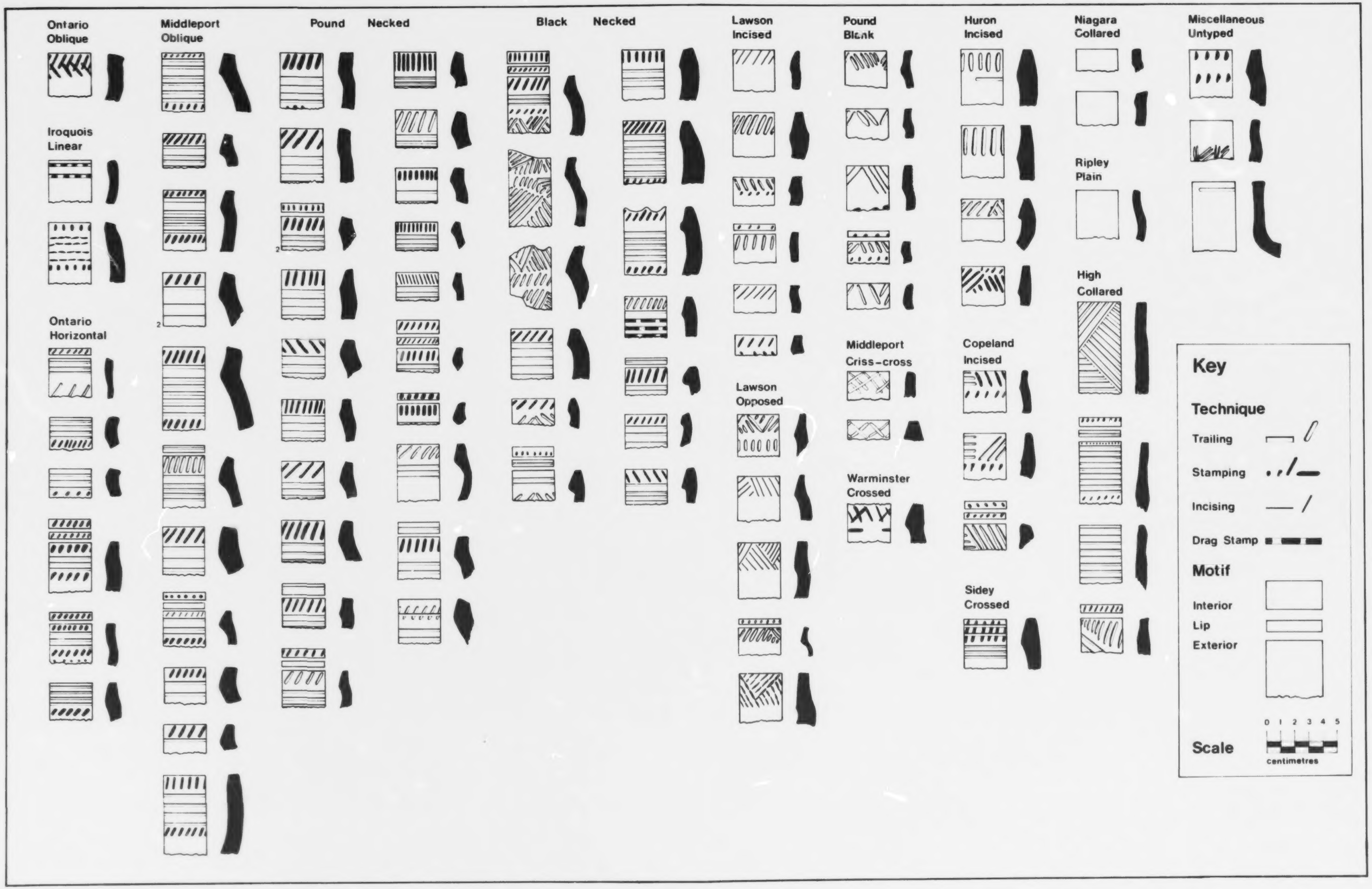
The seven Wiacek specimens follow the type definition closely. Ovoid notches, rarely gashes, are common below and/or above the horizontal elements. Oblique impressions on the lips and interior occur sporadically in the sample (Figure 13). One specimen possesses a neck motif composed of trailed parallel oblique linear elements.

Middleport Oblique (12) According to the type definition "The commonest motif is parallel oblique incised lines or gashes on the upper rim with horizontal lines on the lower rim and neck. Rims are slightly outflaring and have a poorly defined collar. Necks are very slightly constricted" (MacNeish 1952:17). While other variants are noted, the above accounts for all Wiacek rims assigned to this type except one collarless example (Figure 13). Middleport Oblique pottery has a temporal distribution that is restricted to the Middle Ontario Iroquois Stage (MacNeish 1952:17, Wright 1966:137, 145,148) and it is considered as a diagnotic of the Middleport Substage (Wright 1966:61).

It is notable that MacNeish sees the Middleport Oblique pottery type as developing from Ontario Oblique (1952:17). To the contrary, the differences between Ontario Horizontal and Middleport Oblique seem minute, both possessing nearly identical motifs and differing principally in the vertical scale of the motif and in collar development. As such Middleport Oblique shows closest affinities to Ontario Horizontal and, as noted by Wright (1966:63), conceivably constitutes a Middle Ontario Iroquois Stage branch of the type. Although both types occur contemporaneously and are popular during this period, Ontario Horizontal originates before and lasts beyond this stage, apparently having its origins in the Pickering Branch (cf. Wright 1966: Table 1, Pg. 137 and Table 12, Pg. 145).

Figure 13.

The Wiacek Site Rim Sherds


Ontario Oblique
Middleport Oblique
Pound Necked
Black Necked
Lawson Incised
Pound Blank
Huron Incised
Niagara Collared
Miscellaneous Untyped
Iroquois Linear
Ripley Plain
2
2
Ontario Horizontal
High Collared
Middleport Criss-cross
Copeland Incised
Lawson Opposed
Warminster Crossed
Sidey Crossed
Key
Technique
Trailing
Stamping
Incising
Drag Stamp
Motif
Interior
Lip
Exterior
Scale
0 1 2 3 4 5
centimetres

Lastly, and substantiating their similarity, there appears to be some difficulty in distinguishing the two pottery types. Wright (1966:61), for example, notes that the combination of Middleport Oblique, Ontario Horizontal and Lawson Incised dominate the Middleport substage and that the combined high frequency of the three types, and not just the dominant position of any one of the three types may be regarded as one of the diagnostics of the Middleport substage. Does this imply that the relative frequency of the two types vary unsystematically through time? On the same note, Kapches' (1981:251) presentation of the Simcoe focus data derived from Ridley's notes and personal observation of some of the collections, reports a high frequency of Ontario Horizontal rims to the virtual exclusion of Middleport Oblique rims.

I concur that the two types are difficult to distinguish. In the case of the Wiacek sample the distinction was based principally on collar development and the position of the motif with respect to the collar-neck juncture (Figure 13).

Pound Necked (21) As originally defined "The most distinctive features of the type are the horizontal incisions encircling the neck, coupled with oblique or vertical incisions on short poorly-defined, channelled collars" (MacNeish 1952:15).

Temporally, Pound Necked is a late Middleport type that reaches its greatest frequency during the time of the occupation of the Pound site (MacNeish 1952:15), and continues into the Late Ontario Iroquois Stage until it is replaced in the Huron sequence by Black Necked. Pound Necked very closely resembles Ontario Horizontal and Middleport Oblique types and is best regarded as the third temporal and stylistic member of this typological continuum (Figure 14). The major distinction between Middleport Oblique and Pound Necked is a slight variation in the location of the motif with respect to the collar-neck juncture. Middleport Oblique sherds include obliques over one or more horizontal elements on the collar, with the horizontal elements continuing onto the neck. On Pound Necked sherds the entire collar of the vessel is taken up with the oblique elements while the horizontal elements begin just below the juncture of the collar and neck and continue on down the neck. It is interesting in this regard to note that the collars on Pound Necked rims in the Wiacek sample are slightly shorter (x = 12.4mm) than those on Middleport Oblique rims (x = 16.2mm) and it is perhaps this single attribute that underlies the variation between types.

A single rim sherd included within the Pound Necked sample is similar to others of its type but includes a horizontal line which crosses the obliques on the collar (Figures 13 and 30:13).

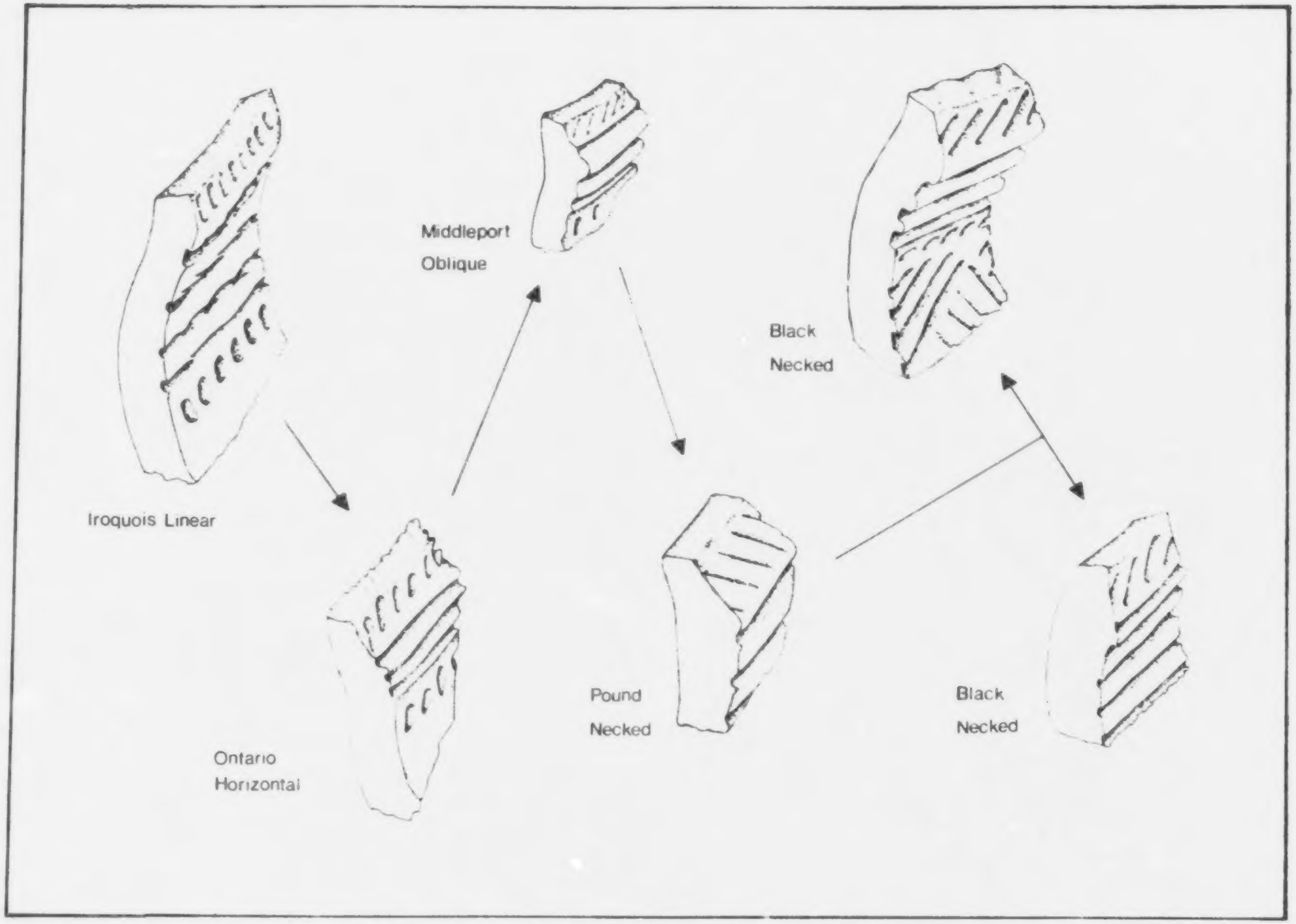

Iroquois Linear
Ontario Horizontal
Middleport Oblique
Pound Necked
Black Necked
Black Necked

Figure 14. Some Ontario Iroquois Ceramic Types, A Temporal and Stylistic Continuum (Examples from the Wiacek Site)

Black Necked (13) This type is a late Middle to early Late Ontario Iroquois Stage type which lingers on into historic times (MacNeish 1952:36). The type develops out of and replaces, Pound Necked rims within the Huron series, but is largely absent from sites in Southwestern Ontario, sites of the Neutral series (cf Wright 1966: Table 15-20, pg. 147-151, MacNeish 1952 Figure 7, pg. 13 and Figure 10, pg.30).

With regard to the motif and form of Black Necked, MacNeish notes that:

> Most of this type have opposed triangles filled with oblique lines on the neck; a few have only horizontal incisions on the neck. On the collars there is a variety of decorations consisting of vertical or oblique lines, opposed triangles filled with oblique lines, horizontal lines with or without basal collar notches, notches at the top and bottom of the collar, and oblique lines crossed by a broken or unbroken horizontal line. There is a tendency for the inner rim to be flat, though almost as many are convex. (1952:36)

It is of interest when comparing Black Necked rims from the Wiacek site to MacNeish's type definition to note that the earliest site in his examination of Huron wares and that which likely heavily influenced his definition, was the Black Creek site, after which the pottery type is named. The Black Creek site represents an early Late Ontario Iroquois Stage component occupied later than the Wiacek site. Wright suggests a date of approximately 1500 A.D. for the Black Creek Site (1966:101), in which case Wiacek specimens may be considered to represent some of the type's earliest examples.

Thirteen Wiacek rims classified as Black Necked may be divided into two subgroups. The first and largest subgroup contains 10 rims that best fit MacNeish's type definition. All exhibit convex rim interiors and rather well developed collars, eight of these exhibit collar motifs consisting of parallel obliques or verticles, or parallel obliques above a horizontal trailed line. All eight rims posses trailed horizontal neck motifs and thus represent a minority variant according to the type definition. Many of these would otherwise be classified as Middleport Oblique or Pound Necked types except for their convex interior profile. The remaining two rims in the first group have neck motifs composed of parallel oblique lines (likely opposed triangles) and thus represent the most common variant according to MacNeish's definition.

The second subgroup is composed of three rimsherds which exhibit parallel oblique (1) and opposed triangular (2) collar motifs and neck motifs of opposed triangles filled with oblique lines. These rims all possess concave interiors, an attribute which does not appear under MacNeish's type definition but which is exhibited in his referenced profiles and illustrated type examples (1952:93, Figure 24, No.90, 121, Plate XII, No. 1,3,4,6,8).

It is notable that Black Necked rims at Wiacek include more of the rarer variants than suggested by the type definition. This assemblage thus appears to illustrate the early configuration of the type variants and seems to substantiate the types derivation from Pound Necked as well as the other earlier forms.

Lawson Incised (6) Diagnostic features of this type include oblique or vertical, parallel incised lines on short poorly defined, channelled collars (MacNeish 1952:14). MacNeish's (1952:12) and Wright's (1966:47) data indicate its presence from Uren times. The types minor occurrence at Wiacek is as expected.

Lawson Opposed (6) Six rims assigned to this type follow the definition closely. Diagnostic features of the type include "opposed incised triangles or areas on a short poorly defined, channelled collar" (MacNeish 1952:14). This type is present but remains a minority type from Middleport to the Historic period in the Huron series (ibid. 1952: 30).

One specimen of this type is noteworthy as the motif is executed in linear stamp (not drag stamp) which is repeated on each linear element to obtain the required length of line (Figure 31:8).

Pound Blank (5) Five rims from Wiacek follow the type definition closely (MacNiesh 1952:15) including alternating wide based, undecorated isoceles triangles separated by 4 (2 to 6) oblique lines on short channelled collars. Pound Blank is a minority type occurring sporatically during Late Middleport and early Late Ontario Iroquois Stage times.

Middleport Criss-Cross (2) As defined by MacNeish (1952: 17) "Particularly distinctive are the criss-cross incisions on the exterior rims". Two rims of this type are tentatively assigned as they are incomplete rims, lacking the basal rim edge. The regularity of the opposed criss cross lines (cf. Warminster Crossed) and the absence of this motif on other pottery types argue for their classification as Middleport criss-cross.

Middleport criss-cross is a minor type of the Middle Ontario Iroquois Stage. It also occurs on the Late Pickering Branch Bennett site (Wright 1966:146), but is absent from the Late Ontario Iroquois Stage Huron series (Wright 1966:148). Its presence at the Wiacek site is considered a late occurrence of the type.

Warminster Crossed (1) The single example of this type is nearly complete, lacking only its lip. Diagnostic features of the type include "closely-spaced oblique lines crossed by widely spaced oblique lines in the opposite direction on short outflaring collars with straight or convex interiors" (MacNeish 1952:32). It is predominately a late prehistoric type (MacNeish 1952:30,31) and its presence at Wiacek is considered an early occurrence.

Huron Incised (4) Diagnostics of this type include oblique or vertical lines on an outflaring short collared pot with the inner surface opposite the collar straight to convex (MacNeish 1952:34). Huron incised appears as a minor type during the Middleport substage (Wright 1966: 147) with its popularity increasing through time.

Copeland Incised (3) Three rims are assigned to this type principally on the basis of their exterior motif which is rare amongst other types. One identification remains tentative as the base of the collar is absent.

> Diagnostic features of the Copeland Incised pottery type are incised horizontal lines on a short collar which are frequently broken by vertical or oblique incised lines. The base of the collar is always sharply defined, and in profile channelled collars are slightly more common than convex interior collars (Wright 1966:73).

The type seems limited in its distribution to the Northern division of the Huron-Petun Branch (Wright 1966: 149). Its presence at Wiacek is an early occurrence of the type.

Sidey Crossed (1) Diagnostic features of this type include "closely spaced parallel oblique or vertical lines crossed by a continuous or broken horizontal line on a short collar which is not channelled" (MacNeish 1952:36). Sidey Crossed is a minor type occurring during the Middle and Late Ontario Iroquois Stages (MacNeish 1952: pg.31, Figure 11; Wright 1966:147-149, Table 15,16 and 18). The single example from Wiacek follows the type definition closely but its motif includes two horizontal elements rather than one (Figure 32:5).

Niagara Collared (2) This type is distinguished by its smooth surface and undecorated short collar (MacNeish 1952:26). The type has a broad spatial and temporal distribution extending from Uren to Late Prehistoric times (Wright 1966:147-149) but remains a minor type throughout the sequence.

Ripley Plain (1) Diagnostic features of this type are its smoothness, total lack of decoration and the small-mouthed globular pot form (MacNeish 1952:26). The type has a broad spatial and temporal range appearing as a minor type throughout the Ontario Iroquois Tradition (MacNeish 1952:13) except amongst sites of the Northern Division Huron-Petun Branch (Wright 1966:137,145-148).

High Collar Rims (4) Four rims and fragments are classified simply as High Collar forms. They do not appear to fall within any defined type but do seem related to Lalonde High Collar forms (Ridley 1952:205), perhaps as early variants of this pottery type. Two of these include opposed triangular plat motifs and two others possess horizontal trailed linear motifs (Figure 32:12,13). Collar heights range from 26+ mm to 65+ mm and profiles exhibit nearly straight interior and exterior forms.

Miscellaneous Untyped Rim Sherds (3) Three rim sherds are unique, untypable specimens and are shown in Figure 32:14-16. The plain small vessel segment with a flat bottom is well made and is thus not considered a juvenile vessel.

Table 19. Wiacek Pottery Types

Type	Rims		Vessels	
	f	%	f	%
Pound Necked	27	22.7	21	22.3
Black Necked	19	16.0	13	13.8
Middleport Oblique	16	13.4	12	12.8
Ontario Horizontal	10	8.4	7	7.4
Lawson Incised	6	5.0	6	6.4
Lawson Opposed	9	7.6	6	6.4
Pound Blank	5	4.2	5	5.3
Huron Incised	5	4.2	4	4.3
High Collar Rims	5	4.2	4	4.3
Copeland Incised	3	2.5	3	3.2
Niagara Collared	2	1.7	2	2.1
Middleport Criss Cross	2	1.7	2	2.1
Iroquois Linear	3	2.5	2	2.1
Ontario Oblique	1	.8	1	1.1
Ripley Plain	1	.8	1	1.1
Warminster Crossed	1	.8	1	1.1
Sidey Crossed	1	.8	1	1.1
Misc.	3	2.5	3	3.2
Total	119	99.8	94	100.1

Castellations

Castellations from 20 vessels are available for study aside from 8 castellated juvenile vessel rims not included in this analysis. Eleven of these included enough of the vessel rim that they could also be included in the rim sherd analysis, while 9 castellations were excluded from that analysis because of the limited extent of the non castellated rim section and associated motif.

Of the 20 castellations examined, 17 consist of a simple heightening of the collar and an associated heightening or raising of the exterior motif to accommodate the additional collar height. These range widely in form from an almost imperceptable few millimetres rise on a high collared rim (1), to low rounded (3) and low pointed (12) forms to one example that is high and acutely pointed. Rarely their is a slight lateral protrusion of the collar associated with this form. An additional rim sherd with a deeply notched or scalloped lip might also be considered as a castellation variety (Figure 31:3).

Three castellations decorated with inverted chevron motifs appear to incorporate a substantial thickening and lateral protrusion of the rim form with major breaks in collar motif. One of these possesses a vertical row of shallow circular impressions below the castellation. These castellations also tend to be higher than the majority of the castellation forms.

Juvenile Ceramics

Twenty seven rim sherds representing 21 vessels are attributable to the work of novices, likely young girls developing their ceramic skills. No systematic attempt was made to separate juvenile body sherds from the remainder of the sample.

Juvenile ceramics are distinguishable from those of the seasoned artisans principally by their size and the irregularity of their vessel walls, lip edges, and decorative attributes. Vessel lips are thin ranging from 3 to 7 mm and the collarless to incipiently collared rims range from being constricted to gently flaring in form. Twelve of the vessels exhibit plain exteriors while the remaining 9 exhibit crude horizontal or oblique motifs composed of incised linear elements (5), fingernail impressions (2), linear stamping (1), or punctates (1). Six of these exhibit lip decoration consisting of simple obliques executed in linear stamping (5) and fingernail impressions (1). Eight of the vessels bear castellations, making these features a common attribute of the small pots. Examples of the juvenile ceramics from Wiacek are provided in Figure 33.

Pipes

Introduction

Smoking pipes were common at Wiacek numbering 123 complete and fragmentary specimens. Generally speaking, the pipe bowls from the site are large, measuring in the range of 50 to 80 mm in height (from the base of the elbow to the lip), and from 25 to 80 mm in diameter, the larger diameters are attributed to trumpet pipes. Most pipe bowls have a plain or smooth surface finish that is gritty to the touch. A few specimens, however, and particularly trumpet pipes, have a burnished, almost glossy finish, a characteristic that becomes more popular amongst Huron pipes through time.

The Wiacek site pipes show little variation in decorative motif. Approximately half of the pipes are plain, while many of the decorated specimens are encircled by rows of trailed horizontal lines or "rings", often underlined by a horizontal row of punctates. This motif is one which has "parallels" to ceramic vessels on which horizontal linear motifs are also popular. Rarely, pipe bowls display opposed oblique linear or punctate motifs. Pipe stems are invariably round, undecorated, and are oriented at right angles to the bowls. In the following sections, the assemblage is described in greater detail.

Pipe Bowls

Of the 71 pipe bowls and fragments, 65 are considered analysable, while 6 bowl fragments lack rims and are considered unanalysable, offering no data on bowl form and being too small to assess whether or not they are plain fragments of plain or decorated bowls. Five plain and five decorated pipe bowl fragments lacking rims, and 8 small rim fragments, include enough of the bowl height to assess the presence and type of decoration, and are thus included in the analysis even though bowl form could not confidently be ascribed. Figure 15 presents the analysable pipe bowls and fragments according to bowl form and decoration while the following discussion identifies the modal forms and variants thereof.

Conical The conical pipe bowl form exhibits virtually straight bowl exteriors with no flaring or contraction of the exterior profile particularly toward the rim. Plain bowl exteriors account for 50% of the conical pipes including 2 juvenile examples and what appears to be a reworked trumpet pipe that has had all of the flaring rim removed and the lip edge smoothed by grinding (Figure 34:5).

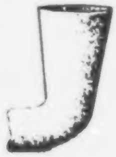
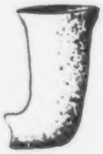
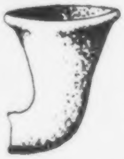
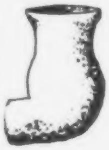
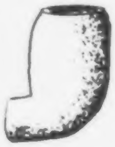
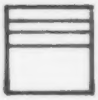
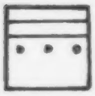
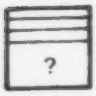
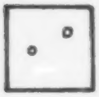
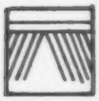
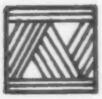
Decoration	Form						
	 Conical	 Flared	 Trumpet	 Vasiform	 Barrel	?	Total
Plain	11	3	3	-	4	6	27
	-	3	-	-	1	-	4
	6	4	-	1	-	6	17
	4	3	1	-	1	3	12
	-	-	-	-	-	3	3
	1	-	-	-	-	-	1
	-	-	-	1	-	-	1
Total	22	13	4	2	6	18	65

Figure 15. Pipe Bowl Form and Decoration.

Decorated varieties of the conical bowl form are predominately "ringed" with from 2 to 6 horizontal lines ($\bar{x} = 5$) and usually bear a horizontal row of punctates below the "rings". Other examples exhibit from 2 to 7 "rings" but lack the lower edge of the motif (Figure 15). One specimen has opposed parallel oblique lines which leave open or blank triangular zones between the oblique elements (Figure 34:9). An unusual specimen included under the conical bowl form in Figure 15 has a major "step" in its exterior profile, and the repetition of the motif above and below this step, as if the pipe bowl was formed from 2 identical nestled bowls (Figure 16).

Flared Conical Flared conical or "Slight Trumpet" (Kapches 1981) pipes, as the names imply, intergrade between conical and trumpet pipe forms. They exhibit concave exterior profiles particularly toward the rim of the bowl but don't flare to the extent that trumpet pipes do. Flared conical forms are predominately decorated with "rings" often with underlying punctates and are less often plain (Figure 15).

Trumpet These pipes possess a tapered bowl form with a pronounced flare toward the rim which contributes to the increased size of the bowl. The single complete specimen from Wiacek measures 78 mm in maximum outside bowl diameter (Figure 34:17). Trumpet pipes, with the single aberrant exception described below, are plain and possess burnished surfaces.

The single aberrant form exhibits an exterior profile that is similar to the other trumpet pipes in the assemblage but this specimen has an exceptionally broad lip (13 mm) which considerably diminishes the interior bowl diameter. The exterior is decorated with parallel horizontal trailed lines (Figure 16).

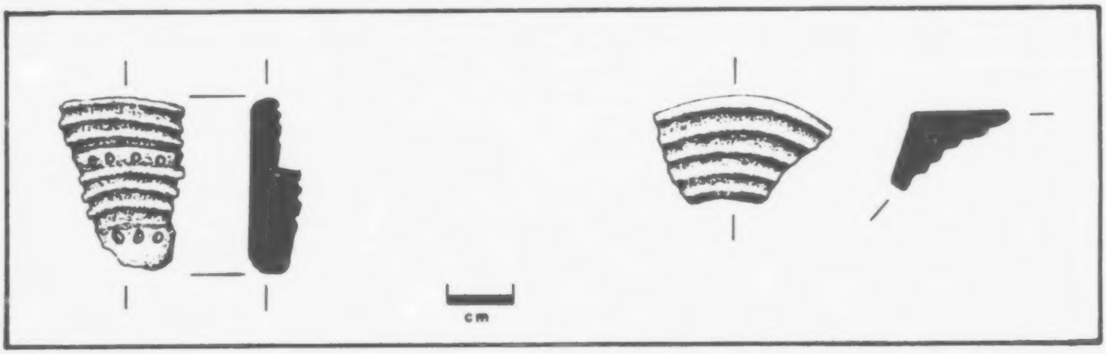


Figure 16. Unusual Conical and Trumpet Pipes From Wiacek

Vasiform Vasiform pipes flare toward the rim and are bulbous toward the base of the bowl. This form is rare at Wiacek including only one complete bowl and a juvenile pipe bowl fragment. A third specimen, not included in Figure 15, is represented by a plain elbow-lower bowl fragment. Rim fragments of this pipe form are impossible to distinguish from the flared variety. As such it is possible that some smaller fragments of vasiform pipes have been misclassified as flared pipes.

Barrel These bowls are constricted at the rim and exhibit convex exterior profiles. Four of the Wiacek specimens are plain while two are "ringed" (Figure 15).

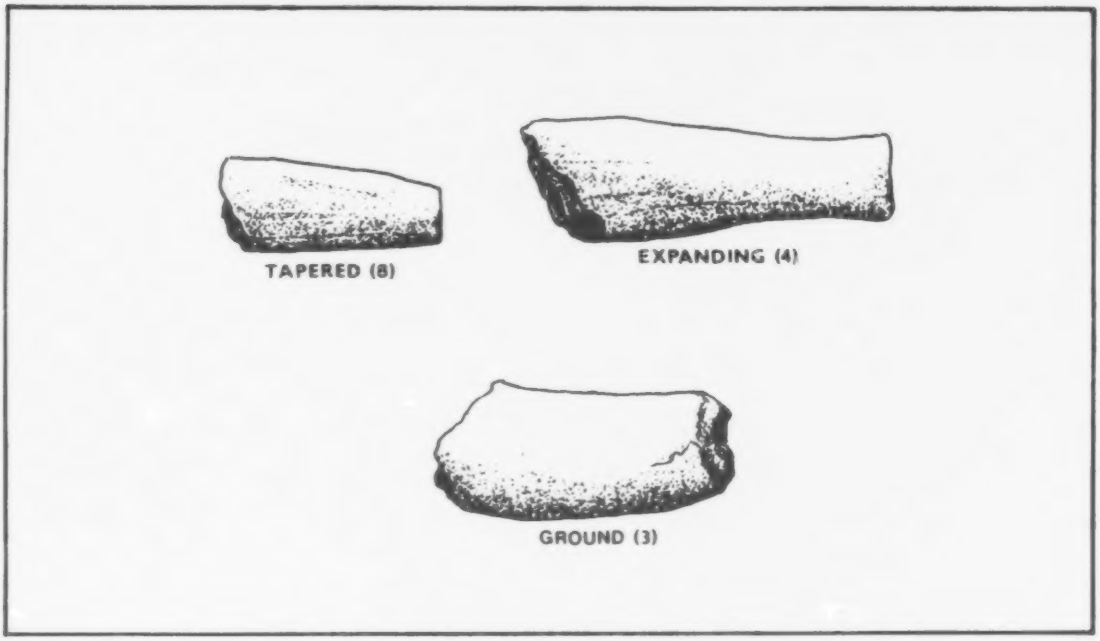
Unknown Eighteen pipes of unknown forms offer additional data on motif/technique variation. Most notable are three pipe fragments that possess punctates as the only decorative technique. Opposed oblique rows of punctates appear on one specimen, while the motif on the other two is unknown.

Pipe Stems

All pipe stem fragments (24), pipe mouthpieces (15), and elbow fragments (13) are plain, and round or nearly round in cross section. Diameters of the stems range from 8 to 20 mm and increase in diameter from the mouthpiece to the bowl. Only smooth bores were recorded in the sample, twisted fiber bores being absent.

Figure 17 shows the range of pipe mouthpiece forms in the assemblage. The ground forms are larger in diameter than the rest of the assemblage and likely represent broken stems that have been reshaped by grinding. It is interesting that the complete Trumpet pipe (Figure 34:17) has such a ground mouthpiece associated with a very short stem. The bore on this reworked mouthpiece has been enlarged apparently for the insertion of an additional length of stem, perhaps a hollow reed.

Figure 17 Pipe Mouthpiece Forms



Ceramic Waste

Seven pieces of fired ceramic materials appear to represent small pieces of wastage that have been incidentally fired. One roughly shaped fired ceramic ball measuring 76 x 61 x 56 mm from H2F31, however, may represent a piece that was intentionally set aside for future use (i.e. a pipe "blank"?), but became unintentionally fired.

Ceramic Affinities and Suggested Period of Occupation

The Wiacek ceramic analysis provides a descriptive summary of the materials recovered and a basis for comparison with assemblages from other, similarly dated components. Unfortunately the site's greatest contribution, to the archaeology of the Simcoe County focus, cannot yet be fully realized as we must await the excavation and analysis of additional components of this local sequence. Lacking such large scale excavations and reliable sample sizes from temporally similar sites in the immediate area, and turning with a broader perspective to such data which are extant elsewhere in the province, at present it is most pertinent to place the Wiacek site generally within the broader context of the Ontario Iroquois Tradition.

Implementing the ceramic type descriptions, frequencies, and reported distributions, some general insights concerning the Wiacek site's temporal placement and cultural affinities may be entertained. An initial examination of the ceramic types indicate low frequencies of both Early and Late Ontario Iroquois Stage types and a predominance of Middle Ontario Iroquois Stage types. While this alone would strongly argue for the site's affiliation with the latter, a total of three types: Middleport Oblique, Ontario Horizontal and Lawson Incised usually account for more than half of the total rim sherds from Middleport sites, and their combined high frequency is regarded as one of the diagnostics of the Middleport Substage (Wright 1966:61). At Wiacek, however, these types account for only 22.6% of the vessels.

With respect to Wiacek's affinities to the Late Ontario Iroquois Stage, Southern Division Huron, the major distinguishing character of Southern division components is the combined high frequencies of Black Necked, Huron Incised, Lawson Incised, and Lawson Opposed pottery types which account for 43 to 70% of the total rim sherd count (Wright 1966:70). The combined frequency of these types at Wiacek again falls short at 30.9%. Wright goes on to note, however that "In the earlier portion of the sequence the Pound Necked Type also has a considerable representation" (ibid.). This is in fact the case at Wiacek where Pound Necked accounts for 22.3% of vessel types.

Unfortunately definition of the pre-fusion Northern Division of the Late Ontario Iroquois Stage is based on only two sites, Lalonde and Copeland, both of which appear to be later than Wiacek. Wright notes that the "major pottery types of the Northern Division are Lalonde High Collar, Huron Incised, Black Necked and Sidey Notched" (1966:73). Most of these types are popular during post Wiacek times and therefore exclude Wiacek as an early representative of the sequence. Wright notes however that "the Copeland Incised pottery type is a quantitative marker of the Northern Division of the Huron Petun Branch" (1966:74). This pottery type accounts for 4.0% of the Lalonde and 2.0% of the Copeland site assemblages (ibid 149). At Wiacek 3.2% of the vessel rims were identified as Copeland Incised, suggesting some affinities to the Northern Division.

According to this analysis and the data available to Wright at the time of his writing, the Wiacek site would appear to lie in an intermediary zone between the definitive extremes. The site thus represents either a Late Middleport or an early Late Ontario Iroquois Stage component.

The terminal date for Middleport and the initiation of the Late Ontario Iroquois Stage is somewhat disputed. Wright (1966:64), admittedly on shaky ground, notes

> "The terminal date of A.D. 1400 is based upon the assumption that at least 200 years would be necessary to incorporate the developments seen in the Late Ontario Iroquois stage. Such a method of calculation is hazardous, and radiocarbon dates from the later stages of the Ontario Iroquois Tradition are needed to place the chronology on a more acceptable basis."

Kapches argues against the significance of the Middleport Horizon and regards Middleport as simply a time period (1981:313,314) suggesting that "tribal differentiation occurred during Middleport, and that this (Wright's) 200 year estimate is not pertinent. Therefore, the late phase of Middleport is estimated to have ended about A.D. 1450 (Kapches 1981:70) or ca. A.D. 1500 (Kapches 1981:313). Based on Kapches' extension of the terminal date for Middleport and a brief comparison with the Markham Focus sequence, Wiacek would appear to represent a Late Phase Middleport component dating to ca. 1400 to 1450 A.D.

A more extensive comparison and rigorous definition of Wiacek's affinities was attempted in a recent paper (Lennox and Kenyon 1984). In addition to the study's main goal it became apparent in classifying the Wiacek rim sherds according to the extant type definitions that the subtle differences which distinguish closely related types often appear to have been interpreted differently by various researchers (cf. Emerson 1968, and White 1961) and in a few instances where multiple analyses of the same collection, or analyses of different collections from the same site exist, the precision attributed to the classification system could be assessed. The following is a summary of that study and its results.

Lacking adequate samples from the Simcoe County-Wiacek site area, 30 sites from Southern Ontario with reliable sample sizes and typological analyses were chosen for comparison with the Wiacek assemblage. (Figure 18 shows the location of sites utilized in this analysis while Table 20 lists site names, abbreviations, and data sources). In addition to these data, multiple analyses were available for several sites and two additional analyses of the Wiacek vessel rims were supplied by two experienced Iroquoian ceramicists with the aid of appropriate references. These are abbreviated as W-2 and W-3 in the following comparisons.

In the following, 30 sites are examined using cluster analysis, the multianalyst sites being treated as if the different analyses were from separate sites. In a better controlled context, this might be considered a variant of the so-called split sample technique, which is used to gauge the reliability of sample data. Hence, there are 35 pottery type samples and ideally the "split-samples" should cluster together. Of course, a site should resemble itself, but, as we shall see, this is not always the case, observer error introducing differences where none exist. So in the following section, it is important to keep track of the changing relationships of the multianalyst sites, for these intrasite differences will provide a crude measure of the reliability of both ceramic type analysis and clustering methods.

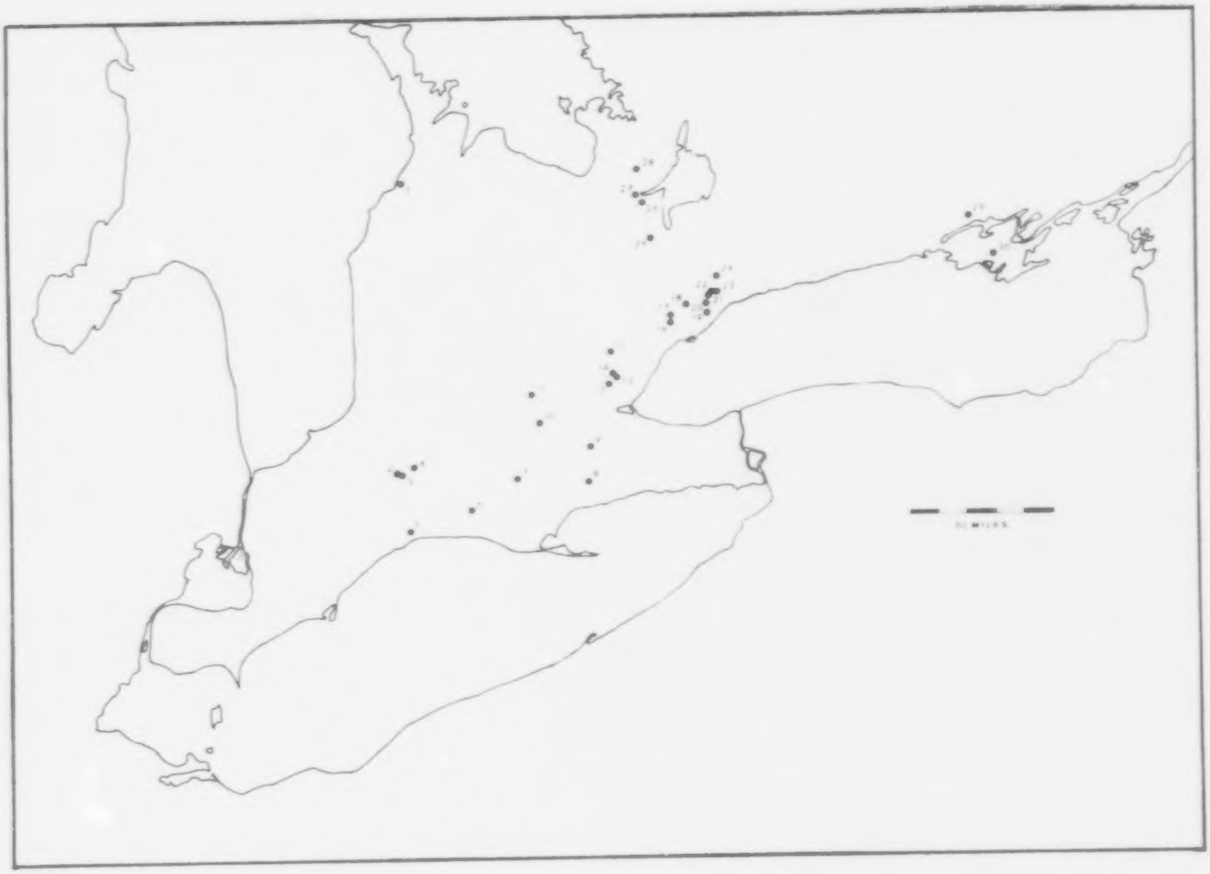


FIGURE:18 COMPARATIVE SITE DISTRIBUTION

1. Nodwell
2. Edwards
3. Drumholm
4. Lawson
5. Southwold
6. Pound
7. Uren
8. Slack-Caswell
9. Middleport
10. Perry
11. Moyer
12. Bennett
13. Pipeline
14. Crawford Lake
15. Milton
16. Black Creek
17. Parsons
18. Doncaster
19. Thomson
20. Elliott
21. Robb
22. New
23. Milroy
24. Draper
25. Bosomworth
26. Wiacek
27. Barrie
28. Copeland
29. Lite
30. Payne

Table: 20 Site Abbreviations and Data Sources

Site		Data Source
Barrie	(BAR)	Wright 1966:146
Bennett	(BEN)	Wright 1966:149
Black Creek	(BLC)	Wright 1966:148
Bosomworth	(BOS)	Wright 1966:150
Copeland	(COP)	Wright 1966:149
Crawford Lake	(CRA)	Busby 1979:110
Doncaster	(DON)	Wright 1966:148
Draper	(DRA)	Wright 1966:148
Drumholm	(DRU)	Pearce 1982:35
Edwards	(EDW)	Pearce 1982:35
Elliot	(ELL)	Kapches 1981:183
Lawson	(LAW)	Wright 1966:151
Lite	(LIT)	Pendergast 1972:56
Middleport	(MID)	Wright 1966:147
Milton	(MIL)	Busby 1979:107
Millroy	(M-W)	Wright 1966:147
Milroy	(M-K)	Kapches 1981:183
Moyer	(MOY)	Jamieson 1979:36
New	(NEW)	Kapches 1981:183
Nodwell	(NOD)	Wright 1974:240
Parsons	(PAR)	Wright 1966:148
Payne	(P-E/P-P)	Emerson 1968:82
Perry	(PER)	Kapches 1981:267
Pipeline	(PIP)	Busby 1979:107
Pound	(POU)	Wright 1966:147
Robb	(R-K)	Kapches 1981:183
Robb	(R-W)	Wright 1966:147
Slack-Caswell	(SLC)	Jamieson 1979:36
Southwold	(SOU)	Wright 1966:151
Thomson	(THO)	Kapches 1981:183
Uren	(URE)	Wright 1966:146
Wiacek	(W-1/W-2/W-3)	

Hierarchial cluster analysis has been used by a number of archaeologists to investigate the relationships between Ontario Iroquois sites. Cluster analysis is principally a method of data reduction, transforming unmanageably large tables of numbers into simpler and presumably more understandable dendrograms (Everitt 1974, and Sneath & Sokal 1972, provide useful discussions of cluster analysis). Like any other quantitative technique, you only get out of the analysis what you put in. Since in this case what is put in are the percentages of 24 pottery types, with all their attendant observer error, it is not surprising to find that the results are not very useful (Figure 19) and indeed somewhat confusing, for the same site may be found in different clusters. Most notably the Milroy (Kapches) site seems to have little relationship to the Millroy (Wright) site. Less extreme, but still showing a marked discrepancy, is the placement of the "two" Robb sites. The Robb (Kapches) site clusters quite tightly with Milroy (Wright) as well as with one analyst's version of Wiacek, but Robb (Wright) appears as an outlier not closely connected to any other sample. It is reassuring, however, to find that the Payne site is very similar to itself. Although in a loose sense the clusters sometimes group sites of similar age, the dendrogram of Figure 19 cannot be said to inspire great confidence in the "scientific method".

The problem here should be clear enough by now: sites are different from one another not only because they have different artifacts but also because they have different investigators. As discussed earlier, observer error tends to occur only among certain types that have intergrading and overlapping attributes. There are groups of types that are difficult to differentiate (e.g. Black Necked - Pound Necked - Middleport Oblique; Lawson Incised - Huron Incised). The analysis of the Wiacek rims and the 24-type cluster analysis focused our attention on these problem types, and suggested an experiment to answer the question: What would happen if one lumped together these "difficult" types and then proceeded with a cluster analysis as before? Figure 20 displays the result of clustering the sites using only 7 ceramic classes listed in Table 21.

Table 21. Grouped Ceramic Types

1. Ontario Horizontal, Iroquois Linear.
2. Middleport Oblique, Pound Necked, Black Necked, Middleport Criss-Cross.
3. Lawson Incised, Huron Incised, Lawson Opposed, Sidey Crossed, Warminster Horizontal, Sidey Notched, Copeland Incised, Pound Blank, Warminster Crossed.
4. Ontario Oblique.
5. Lalonde High Collar.
6. Seed Incised, Ripley Plain, Ripley Collard, Niagara Collared.
7. Bossed Scugog Punctate, Glen Meyer Linear Stamped, Uren Noded.

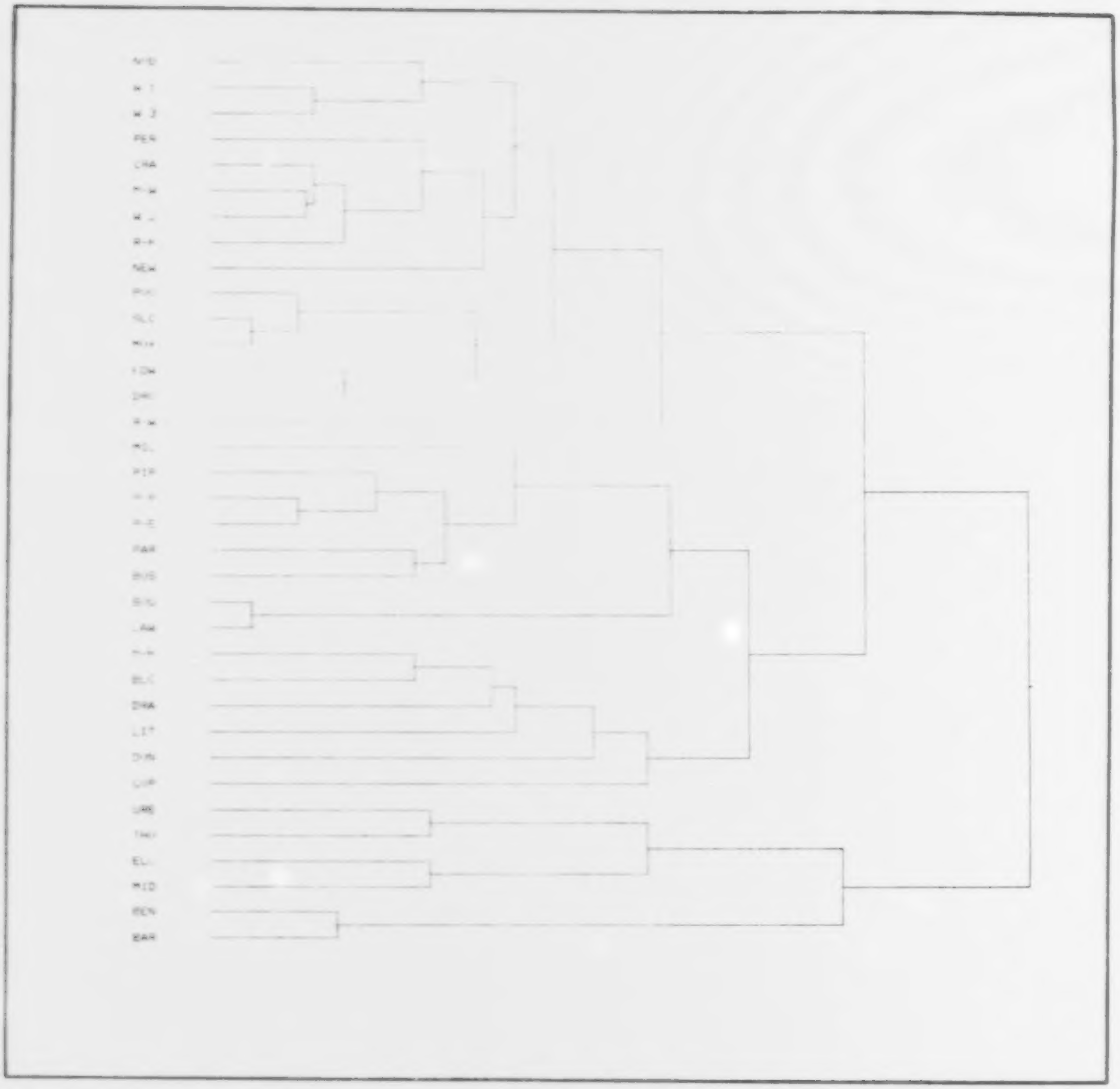


Figure 19. Group Average Cluster Analysis Using 24 Types.

(In this and the following two figures, the Brainerd-Robinson coefficient of the similarity has been employed. In the analysis, miscellaneous rims - those that are either untyped or types found only on one site - have been eliminated and the remaining type percentages recalculated to total 100%. Site name abbreviations and data sources are detailed in Table 20)

The first three classes represent groupings of types that, in our experience, are prone to observer error (also thrown in are a few minor types such as Warminster Crossed and Warminster Horizontal - cluster analyses with these types separated out show no significant differences to the results given in Figure 20). The last two classes are "catchalls", with group no. 5 representing undecorated or lightly decorated rims and group no. 7 some early "Pickmeyer" types. The 7 classes can not be considered as optimal groupings of types, for there is an evident arbitrariness in the list. Certainly many other, and possibly better, arrangements can be made. But such simplifications allow us to look at a set of data in a different way, ideally minimizing observer error.

Despite the loss of information that must necessarily occur because of this rather drastic lumping of types, the results of the cluster analysis (Figure 20) are much more interpretable than that produced by using 24 separate types. Not only is the clustering structure tighter - the dendrogram has almost a textbook form - but also the multianalyst sites begin to cluster with themselves. Notably, the two Milroys cluster fairly closely, and the Robb (Wright) site is no longer an outlier. Only the two Paynes are pulled somewhat apart by this lumping process. There is one curious difference between the two cluster analyses. In the 24-type dendrogram (Figure 19), Wiacek #3 clusters tightly with Wiacek #1, but in the 7-type analysis (Figure 20) it clusters with Wiacek #2.

But if such a lumping of types produces reasonably interpretable results, why not go a step further? Toss out all but the first three classes (nos. 1 to 3 in Table 21), for it is only these three that have large percentages, and entirely drop the other four classes from the analysis (recalculating the percentages of the retained classes so they total 100%). Despite so cavalierly ignoring 9 types, the 3-type cluster analysis (Figure 21) is virtually identical to the 7-type one. But with only a three variable data set, it is not a very meaningful exercise to calculate the cluster analysis dendrogram. A more efficient method of displaying this data set is to plot the sites on a triangular co-ordinate graph (Figure 22) with each pole representing one of the three ceramic type groupings. The broken lines on this graph encircle four site clusters, as suggested by the dendrograms of Figure 20 and 21. There appears to be some archaeological reality behind these four site clusters; however, the relative position of sites within these clusters may be unreliable, as indicated by the variable placements of the multianalyst sites.

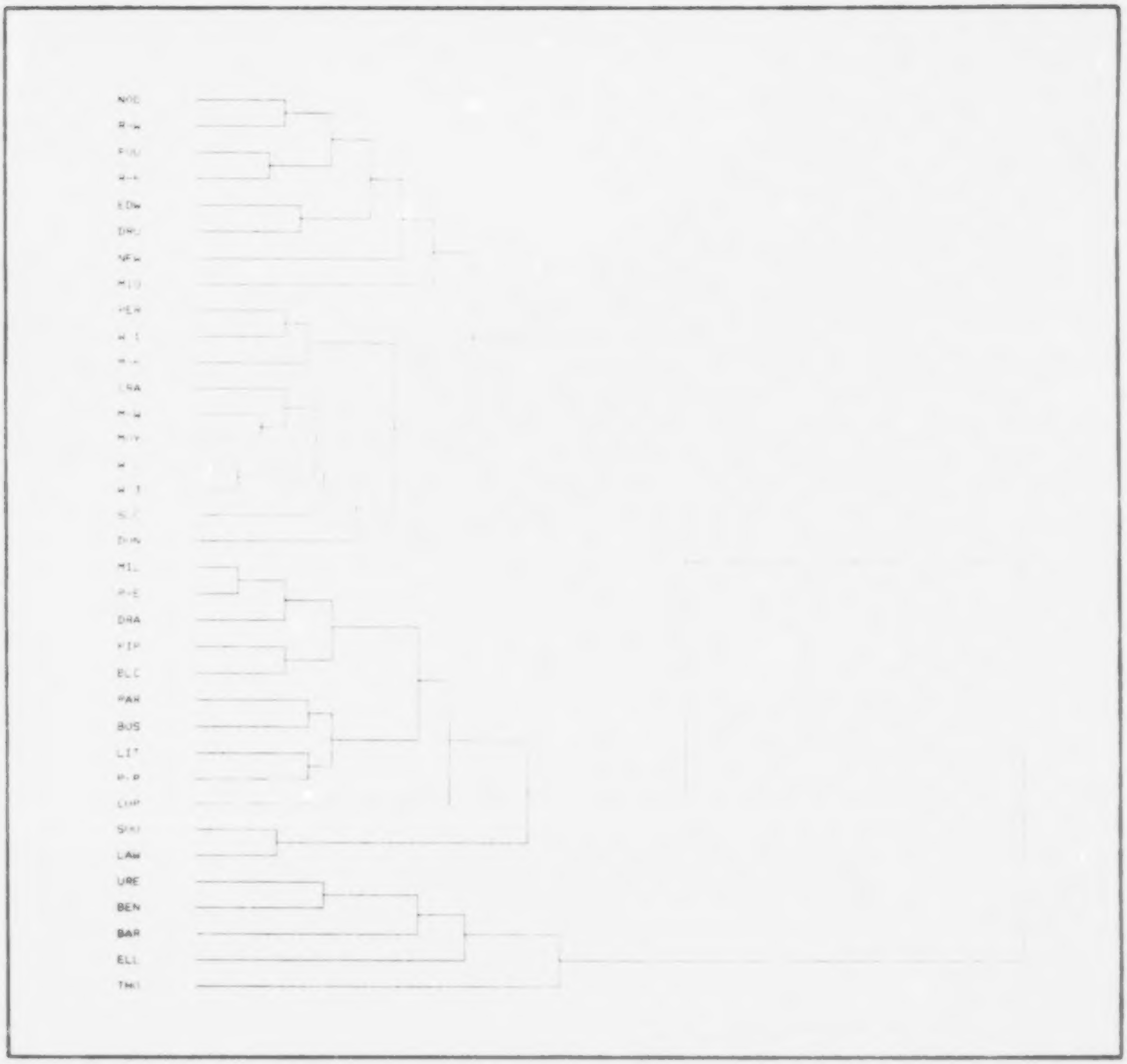

NOE
EDW
DRU
NEW
CRA
DUN
MIL
DRA
ELC
PAR
BUS
LIT
LAW
URE
BEN
BAR
ELL
THI

Figure 20. Group Average Cluster Analysis Using 7 Type Classes.

(The constituent types of each class are listed in Table 21).

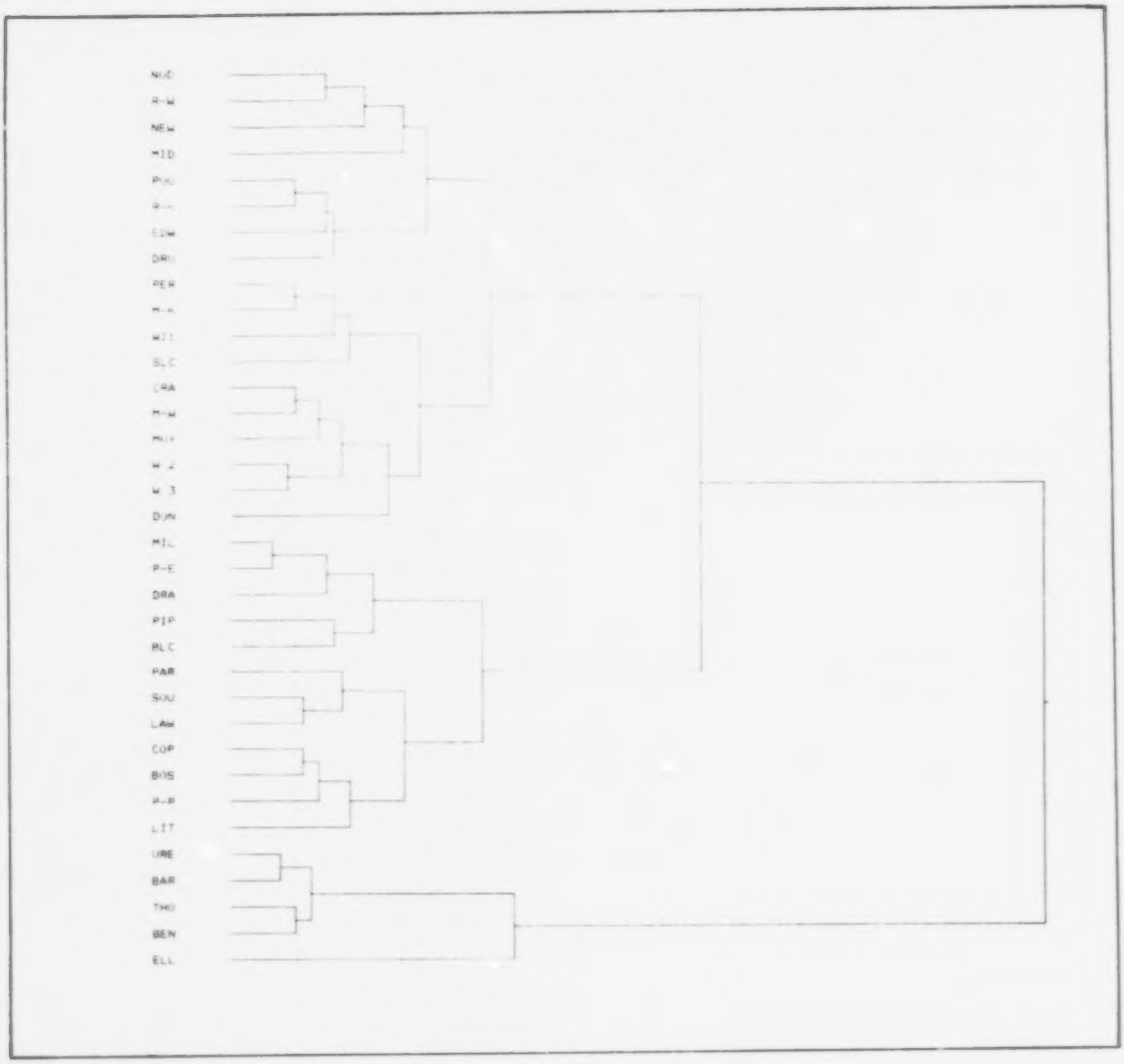


Figure 21. Group Average Cluster Analysis Using 3 Ceramic Classes

The four major site clusters suggested by Figures 20, 21, and 22 are reasonably good period groupings, with Cluster 1 (Figure 22) being the earliest and Cluster 4 the latest. This can be seen by considering the radiocarbon dates for the sites.

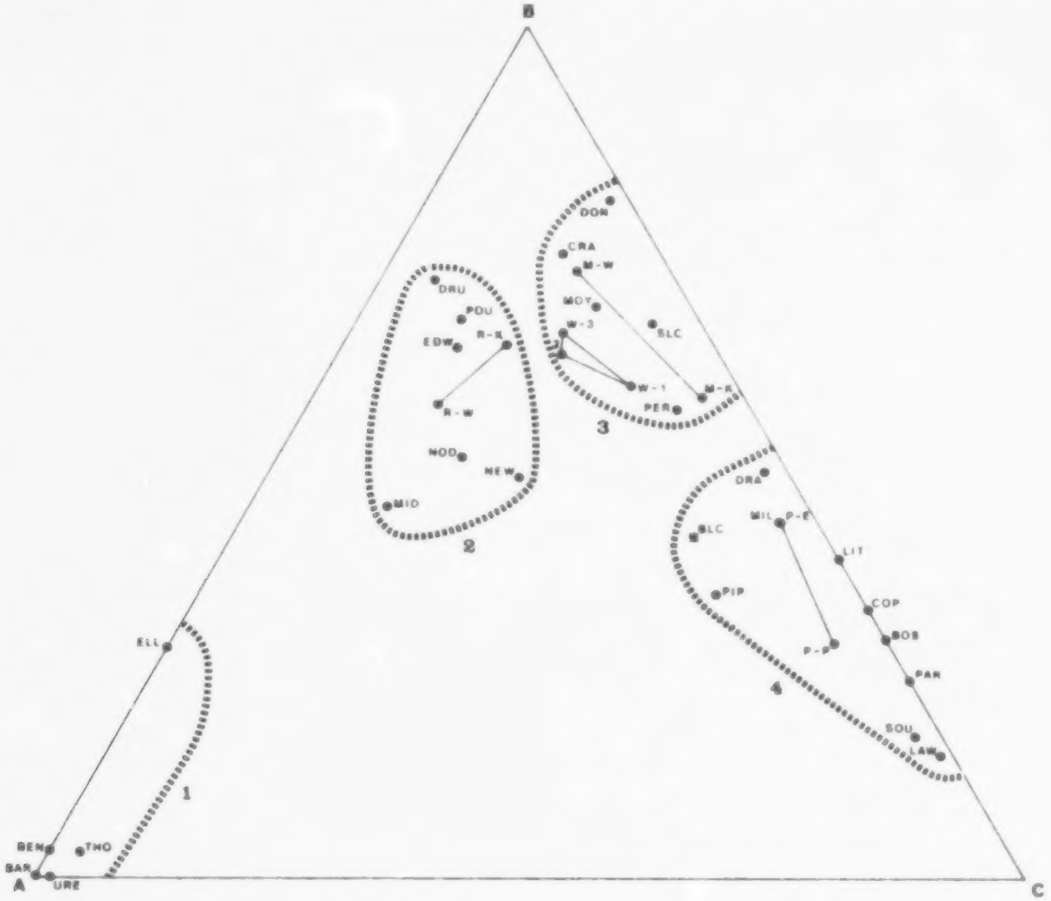


Figure 22: Triangular Co-ordinate Graph of 3 Ceramic Classes (Type Class Key: A = #1, B = #2, C = #3. Group numbers as listed in Table 21.)

Cluster 1 The sites in this cluster have been variously labeled as Pickering, early Middleport and Uren Substage. Apparently such subtle distinctions made little difference to the people who lived on these sites. The two dated components used here have similar radiocarbon determinations: Uren A.D. 1125 ± 70, 1250 ± 70, 1270 ± 70, 1300 ± 60; Benett A.D. 1260 ± 130, 1280 ± 100 (these and all subsequent dates have been taken from the compilation in Fox, 1983). A date range rounded to the nearest 50 years of A.D. 1200-1300 is consistent with the radiocarbon dates for Cluster 1 sites.

Cluster 2 This cluster includes the Middleport site itself, which unfortunately has never been dated. Radiocarbon dates exist for three sites: Edwards A.D. 1250 ± 80, 1260 ± 100; New 1310 ± 85; Nodwell A.D. 1340 ± 75. Sites of Cluster 2 would then appear to fall into the A.D. 1250-1350 period (the overlap with the dates for Cluster 1 represents imprecision introduced by both the inherent variation of the radiocarbon method and the vagarities of the ceramic type data).

Cluster 3 The only site with radiocarbon dates is Slack-Caswell with two readings of A.D. 1320 ± 60 and 1420 ± 35. Possible dates for Cluster 3 sites are A.D. 1350-1450, a range consistent with the A.D. 1435-1459 varve dates for Crawford Lake also in Cluster 3. The Waicek site (all three analyses) fall into this cluster.

Cluster 4 This cluster consists of "Late Prehistoric" sites, four of which have radiocarbon dates: Pipeline A.D. 1405 ± 85; Lite A.D. 1450 ± 130; Lawson A.D. 1510 ±100, 1710 ± 95; Draper A.D. 1360 ± 75, 1380 ± 95, 1455 ± 65, 1520 ± 85, 1545 ± 65, 1740 ± 80. A date range of A.D. 1400-1550 is consistent with the above data.

Conclusions The various cluster analyses in the previous section were undertaken in an exploratory and experimental vein. Despite the apparently sophisticated quantitative apparatus, the simple method of plotting on a triangular graph gave results that were at least as good, and probably less misleading, than a cluster analysis of the full suite of types. Perhaps simpler is better, at least when, as with Iroquois pottery types, the data is inconsistently measured. Given the quality of the Iroquoian ceramic typology, only approximate results can be expected. Certainly more sophisticated methods of quantitative analysis can be applied to this type data (as they can be with any set of data regardless of quality) with, however, little being gained; perhaps nothing more than the allure of scientific method - but without science's precision.

It is easy enough to say that the type system should be entirely abandoned, for there are severe problems, but new difficulties emerge with attribute analysis as presently practiced. Indeed the problems encountered in type and attribute analysis are the opposites of one another. To put it simplistically: with MacNeish's types, analysts are using the same categories but making somewhat different decisions about their boundaries; in attribute analysis the decisions are (presumably) consistent but the categories are often different. It is no easy matter to match the attribute sets of one researcher with those of another. Obviously more rigour is needed in ceramic analysis but rigour has two aspects: 1) making consistent, objective decisions that others could make when faced with the same collection; 2) casting the resulting data in a form that is compatible with the work of others.

Returning to the Wiacek site, the foregoing analysis suggest that it is most similar to sites which can be assigned to an A.D. 1350-1450 time range. It is interesting to compare these results with the dates from three carbon samples submitted (Chapter VI).

Wiacek Lithics

Introduction

The lithic tools and debitage from the Wiacek site include 1428 chipped and ground stone specimens (Table 22) which account for 23.3% of the artifact assemblage (Table 16). Excluded from this total and from the following analyses is a collection of microdebitage (638 specimens), principally derived from the heavy fraction of the flotation samples. Measuring less than 6mm in their maximum dimension, the small size of these flakes often precludes their morphological and material type identification.

In the following sections, lithic material types, their sources, methods of reduction and utilization for various tool types are presented. An examination of this data results in a comprehensive view of prehistoric lithic technology in this region and provides a foundation for understanding the available and selected options reflected by historic period assemblages.

Table 22. Wiacek Site Lithics

Item	f	%
Debitage*	616	77.9
Cores (Bipolar)	92	11.6
Utilized flakes	26	3.3
Retouched flakes	20	2.5
Points	4	.5
Scrapers	4	.5
Biface	1	.1
Celts	8	1.0
Hammerstones	9	1.1
Anvilstones	6	.8
Mano	1	.1
Abraiders	2	.2
Misc.	2	.2
Total	791	99.8

* Excludes microdebitage (f=638)

Material Types

In this analysis chipped lithic debitage from the Wiacek site will be identified as to material type. The identification of chert types was made possible by comparing such attributes as colour, texture, degree of translucency and the presence of various inclusions with known source samples. The comparative collection, and considerable assistance were graciously provided by Mr. Wm. A. Fox, S.W. Regional Archaeologist, Archaeology and Heritage Planning Branch, Ontario Ministry of Citizenship and Culture. Geological, descriptive, and locational data for most chert types identified are available from Fox 1979a, Storck and Von Bitter 1981, Von Bitter and Eley 1984.

Table 23 summarizes the occurence of various chipped lithic debitage at Wiacek. Notable are the broad array of materials utilized, and the high incidence of Huronian and Balsam Lake cherts, which account for roughly half of the assemblage.

Table 23. Wiacek Lithic Debitage Material Types

Material Type	f	%
Cherts		
Huronian	278	45.1
Onondaga	94	15.3
Balsam Lake	73	11.8
Collingwood	9	1.5
Chalcedony	8	1.3
Trent	2	.3
Bruce	1	.2
Kettle Point	1	.2
Hudson Bay Lowland	1	.2
Unidentified	42	6.8
Unidentifiable Burnt	55	8.9
Quartzite	24	3.9
Quartz	23	3.7
Schist	3	.5
Slate	2	.3
Total	616	100.0

The predominance of Huronian and Balsam Lake cherts is understandable since both chert types, as well as quartz, quartzite and chalcedony occur as water worn nodules in the local tills. This appears to be common knowledge in the case of Huronian chert but the presence of Balsam Lake chert beyond its Trent Valley sources to the east of Lake Simcoe and particularly its presence in the tills of the Innisfil uplands appears to provide new data on the type's secondary source distribution. The larger, unworked, waterworn nodules of both cherts were collected from the screened and floated samples and metrics are provided in Table 24. It should be emphasized that these are the largest specimens recovered and that numerous smaller pieces of both chert types in the range of 10 mm in diameter and less, help confirm that these are natural occurrences and not unmodified, imported materials. This is also likely the case for Trent chert and the white, cream or light beige banded, translucent material listed simply as chalcedony, although their presence on the site as debitage and in natural pebble form is rare. A single unmodified pebble of Trent chert recovered from F22 measures 23 x 18 x 10 mm.

The incidence of exotic cherts at the Wiacek site is also remarkable (Table 23) and includes Onondaga and Kettle Point cherts from Southwestern Ontario, Bruce and Collingwood cherts which derive from the Fossil Hill Formation on the Bruce Penninsula and in the Collingwood area respectively to the west, and Hudson Bay Lowland chert from the north. The limited occurrence of the later material, judging from the presence of nodular cortex on several specimens, appears to have derived from secondary sources and these occur as far south as approximately 48° Latitude. The material is popular prehistorically along the north shore of Lake Huron (Fox personal communication 1984) and provides the likely origin of the Wiacek specimens.

The range of exotic cherts appears typical of sites in Huronia (Fox 1979b) and is attributed to the scarcity of quality local materials and to broad prehistoric trade connections.

Burnt pieces that have been thermally altered beyond recognition, and specimens that were generally too small to confidently identify account for most of the unidentifiable cherts in Table 23.

Table 24.

Unmodified Huronian and Balsam Lake Chert Nodule Metrics

Attribute (mm)		Chert Type	
		Huronian (9)	Balsam Lake (6)
Length	r	16 - 45	12 - 24
	$\bar{x}$	26.8	18.2
	s	9.5	4.9
Width	r	11 - 33	10 - 23
	$\bar{x}$	19.7	15.2
	s	6.5	4.6
Thickness	r	9 - 30	6 - 16
	$\bar{x}$	16.7	9.3
	s	6.8	3.7

Debitage Morphology

Lithic debitage was classified according to morphological types, as identified below, to provide indications of the reduction stages represented at the site. Particularly interesting are the results of this analysis knowing that the bipolar technique predominates as a reduction technique and that there is a scarcity of bifacially flaked tools at Wiacek. While all material types are listed according to this classification system in Table 25 (except the five flakes of schist and slate), only the most common cherts - Huronian, Onondaga, and Balsam Lake provide sample sizes worthy of discussion.

Primary Flakes Primary flakes are derived from cores. In most assemblages examined by this author they are attributed to direct hard hammer percussion, but in this assemblage, which emphasizes the bipolar technique, many flakes classified as primary flakes are likely products of the bipolar technique but are not recognizable as such. Primary flakes may exhibit a large cortical striking platform, a platform that appears on a fresh but otherwise unmodified flake scar, or simply a crushed flake margin. Where measurable, the striking platform-ventral surface angle approximates 90 degrees. Ventral surface attributes are usually well pronounced while the dorsal surface usually bears the negative attributes of previous primary flake removals or remnants of the cortical chert nodule surface.

Only 20.6% of primary flakes from Wiacek exhibit cortex on their dorsal surfaces, an incidence which seems low given the predominant use of secondary source materials. By comparison, at the early Late Woodland Bruner-Colasanti site, where secondary source materials were also preferred, 61% of the primary flakes exhibit cortex on their dorsal surfaces (Lennox 1982:17). Perhaps the chert nodules utilized by the Wiacek peoples were gathered from creek beds, beaches, or other off-site locations where they were initially tested for material type and quality, resulting in off-site removal and deposition of much of the pebble cortex. Notably, most of the natural chert nodules recovered from the site and those in the comparative collection are not easily recognized as chert when their cortex is intact.

Bipolar Flakes Bipolar flakes are flakes which can be attributed to the technique of bipolar reduction. These flakes are usually elongate, exhibiting crushed striking platforms. Dorsal surfaces are usually marked by the

Table 25. Wiacek Debitage Morphology

	Material Types														
Flake Types	Huronian	Onondaga	Balsam Lake	Hudson Bay Lowland	Unidentified Chert	Burnt Chert	Collingwood	Bruce	Kettle Pt.	Trent	Chalcedony	Quartz	Quartzite	Total f	Total %
Primary	99	33	19	-	11	8	-	1	-	1	2	7	8	189	30.9
Bipolar	31	14	6	-	8	3	3	-	-	-	-	1	3	69	11.3
Secondary	31	18	3	-	3	7	-	-	1	-	2	8	1	74	12.1
Shatter	50	10	26	1	9	22	2	-	-	-	-	2	2	124	20.3
Fragments	67	19	19	-	11	15	4	-	-	1	4	5	10	155	25.4
Total	278	94	73	2	42	55	9	1	1	2	8	23	24	611	100.0

compared to the high incidence of bipolar cores. However, flakes classified as bipolar flakes include only those flakes which exhibit those characteristics described, while a broad range of debitage is in fact produced by the technique of bipolar reduction.

Secondary Flakes Secondary flakes are thought to be the result of shaping and thinning bifaces by percussion or pressure flaking. They are characterized by their generally small size, diffuse bulb of percussion, and by their striking platform that can be small and faceted by flake scars or may consist simply of a crushed flake margin. When present, the striking platform-ventral surface angle is obtuse and the platform-dorsal surface angle is acute. Cortex is rarely observed on the dorsal surface of secondary flakes and is absent from the Wiacek assemblage, rather, the dorsal surface is usually scarred by the removal of small flakes which parallel the longitudinal axis of the flake.

Secondary flakes account for 12.1% of the Wiacek debitage and even this low incidence appears disproportionately high in comparison to the few bifacially flaked tools recovered. Most likely this overrepresentation is attributable to the removal of flakes resembling secondary flakes from the ridged edges of bipolar cores.

Shatter Shatter usually consists of thick, blocky pieces of chert which lack striking platforms and ventral flake surface attributes. This category of debitage is thought to be a byproduct of the initial stages of reduction and the uncontrolled breakage of the raw material along structural faults or irregularities. A relatively high incidence of shatter is usually associated with the bipolar technique. It is also a common byproduct resulting from the use of horizontally and vertically flawed material, apparently a result of stresses occurring on the material while still within its primary deposit.

Flake Fragments While proximal flake fragments could usually be assigned to one or another of the above categories, distal flake fragments are simply tabulated under this debitage class.

Cores

The widespread use of the bipolar technique is typical of Huron area assemblages and at Wiacek the bipolar core is the only core type represented (92 specimens). The use of the bipolar technique to acquire a few additional flakes from an exhausted hand held random or rotated core (particularly where the availability of chert is limited or where a preferred exotic material is being worked), and also to reduce pebble cherts that are too small to be effectively hand held, are suggested uses of the technique which are both pertinent to this site and its resource base. Forty-seven of the 92 cores (51%) exhibit cortical surfaces, indicating the use of small, waterworn chert nodules.

The Wiacek bipolar cores are generally small (Table 27) as are many of the utilized flakes from the site such that utilizable flakes in this instance could have been derived from such small cores. While some of the cores may have been utilized as tools, only on 9 of the 92 recovered does such use produce modifications on the cores that cannot be accounted for by the process of bipolar reduction. Of the 9 cores that appear utilized, one exhibits use retouch on its lateral edge, one core shows edge rounding and use retouch on opposing ridges, one shows similar use wear on its lateral edge, and edge rounding appears on the ridges of 5 cores and on the lateral edge of one core.

Tables 26, 27 and 28 summarize the bipolar core material types, metrics, and core types according to Binford and Quimby's (1963) classification.

Table 26. Bipolar Core Material Types

Material Type	f	%
Huronian chert	30	32.6
Onondaga chert	20	21.7
Balsam Lake chert	13	14.1
Trent chert	6	6.5
Collingwood chert	4	4.3
Chalcedony	3	3.3
Unidentifiable chert	10	10.9
Quartzite	4	4.3
Quartz	2	2.2
Total	92	99.9

Table 27. Bipolar Core Metrics (mm)

	Length	Width	Thickness
frequency	73	92	92
range	11 - 54	7 - 43	3 - 19
mean	20.9	15.2	7.4
standard deviation	6.1	6.0	3.2

Table 28. Bipolar Core Types

Core Types	f	%
Complete Specimens		
Ridge Point	21	22.8
Ridge Area	16	17.4
Point Area	10	10.9
Opposing Points	14	15.2
Opposing Ridges	11	12.0
Right Angled Ridge	1	1.1
Incomplete		
Ridges	16	17.4
Points	2	2.2
Areas	1	1.1
Totals	92	100.1

Edge Retouched Flake Tools

This artifact category includes intentionally modified flake tools, all 20 of which possess continuous steep unifacial retouch along one or more edges. These may have been classified as flake scrapers but are contrasted here with the more formalized end scrapers and the utilized flakes, many of which also likely served a scraping function. The following paragraphs subdivide the assemblage of edge retouched flake tools into more coherent descriptive units and details of each specimen are provided in Table 29.

Seven retouched flakes (Table 29:1-7, Figure 35:7-13) appear to represent formalized tools in the sense that they are intentionally retouched to generally steep angles usually on more than one edge. Compared to other flakes considered in this section the effort and control of their production suggests that they were not makeshift tools to be discarded after a short use life, but at the same time none show advanced wear patterns. Where wear is at all apparent it consists of very slight rounding of the immediate working edge. Adjacent retouched edges create acute points on 5 of the 7 specimens but the points lack any signs of use and are likely a byproduct of the adjacent edge configuration rather than integral parts of the tools. Alternatively 3 of the 5 steeply retouched and pointed specimens may represent projectile points. The steep retouch would appear to be acceptable point edges as seen from the more obvious example (Figure 35:30). This interpretation also accounts for the minimal edge and point wear observed on these retouched flakes.

Eleven additional flakes Table 29:8-18, Figure 35:14-20) possess edges similar to those above. They are generally steep angled and show little use. Edge rounding appears slight compared to its virtual absence on the previous specimens and these flakes tend to be smaller, more irregular in shape, and possess only one short utilized edge.

Two flakes (Table 29:19,20, and Figure 35:21,22) possess single, steeply retouched, irregular or serrated edges and exhibit advanced edge rounding which is particularly prominant on the projecting points of the edges.

Table 29. Edge Retouched Flake Tools

Provenience		Material	Flake Type	Flake Metrics (mm)			Retouched Edge			
				L	W	T	Location	Length	Shape	Edge•
1.	H2F21	H	P	27	13	4	LD	21	S	90
							LV	19	S	70
2.	H2F53	ON	S	26	13	2	LV	18	S	60
							LV	21	S	60
3.	21S19W	KP	P	16	21	4	LD	18	S	60
							DD	21	CV	80
4.	MD	ON	S	30	18	3	LD	27	S	80
							LV	14	S	80
							PD	8	S	70
							DD	21	S	70
5.	Surface	ON	P	17	20	5	DV	20	S	70
							LD	18	CV	70
							LD	(10+)	CV	80
6.	25S15W	H	P	29	20	7	LD	26	CV	80
7.	H1F22	H	P	19	19	5	LD	18	CC	70
							LD	16	CC	80
							DV	19	S	40
8.	H2F74	C	B	21	12	6	LD	11	S	50
9.	H2F53	H	B	14	20	6	LD	11	S	70
10.	H2S	H	B	21	17	6	LD	14	CV	80
11.	H2F63	H	P	17	14	4	LD	12	S	80
12.	29S16W	ON	F	(16+)	10	5	LD	(14+)	CC	70
13.	MD	?	B	17	15	3	LD	10	S	60
14.	PM37	?	P	28	15	5	LD	13	S	80
15.	28S17W	H	B	(17+)	13	3	LD	(13+)	S	70
16.	MA	H	S	11	14	3	PD	13	S	80
17.	H2F53	Qz	B	24	14	5	LD	21	S	80
18.	29S16W	Qz	B	25	25	10	LD	23	CV	70
19.	Surface	ON	Sh	20	17	5	?	15	I	90
20.	22S15W	?	P	25	19	4	DD	14	I	90

Abbreviations

Material Types

H - Huronian Chert
ON - Onondaga Chert
BL - Balsam Lake Chert
T - Trent Chert
C - Chalcedony
KP - Kettle Point Chert
Q - Quartz
Qz - Quartzite
? - Unidentifiable Chert

Flake Types

P - Primary
B - Bipolar
S - Secondary
Sh- Shatter
F - Flake Fragment

Retouched Edge Location

Edge	Face
P - Proximal	D - Dorsal
D - Distal	V - Ventral
L - Lateral	B - Bifacial

Retouched Edge Shape

S - Straight
CC - Concave
CV - Convex
I - Irregular

Utilized flakes

In this assemblage utilized flakes are generally small in size, irregular in form, and exhibit what is best regarded as use retouch consisting of flake scars measuring a millimeter or less in length. Despite the small size of the use-wear retouch it is continuous, unifacial, and occurs along the thin feathered edges of the flakes. Edge rounding is slight, though its presence is apparent on the majority of specimens. The combination of edge rounding and shortness of use retouch on the thin edges of these flakes makes even rough measurement of utilized edge angles difficult though they do appear to be steep. Use in a scraping mode is suggested by the unifacial wear pattern. Table 30 provides descriptive data for this assemblage.

Table 30. Utilized Flakes

Provenience	Material	Flake Type	Flake Merics (mm)			Utilized Edge		
			L	W	T	Location	Length	Shape
1. H1F2	ON	B	19	20	4	DD	14	I
2. H1F8	?	S	11	12	3	DD	11	CV
3. H1F22	H	B	28	12	3	LV	12	S
4. H2F57	?	B	(14+)	9	2	LD	8	CV
5. H2F63	?	F	(10+)	(8+)	3	?	8	S
6. H2F63	H	S	16	12	2	LV	9	CV
7. H2F79	T	P	25	13	6	LD	14	S
						LV	18	S
8. F58	ON	S	(12+)	14	2	LV	(12+)	S
9. 21S15W	ON	S	17	8	3	LD	14	CV
10. 25S17W	T	P	(21+)	13	3	LD	13	CV
11. 26S13W	BL	B	24	10	6	LD	13	S
12. 26S16W	ON	B	16	10	2	LD	14	I
13. 26S16W	H	B	16	10	5	LD	13	S
14. 27S14W	H	B	15	11	4	LD	7	S
15. 27S14W	ON	B	17	10	3	LD	15	I
						LD	(7+)	S
16. 27S17W	?	S	21	15	2	LD	11	S
17. 27S17W	H	P	10	11	2	LD	10	I
18. 27S17W	H	F	(11+)	12	2	LD	(12+)	I
						LV	(8+)	S
19. 28S14W	H	P	13	16	4	DD	16	I
20. 28S15W	ON	B	18	13	3	LD	15	CV
21. 28S15W	H	P	15	26	3	LD	17	CV
22. 28S16W	ON	P	18	12	5	LV	11	I
23. 28S17W	ON	F	(10+)	17	2	DD	(16+)	CV
24. 29S16W	ON	F	(16+)	(12+)	2	LV	(16+)	S
25. MD	H	P	15	14	4	DD	12	I
26. Surface	ON	F	(11+)	(10+)	1	?	(6+)	S

For abbreviations - see Table 29.

Scrapers

Many of the retouched and utilized flakes described above likely functioned as scrapers while four specimens described here are more formalized tools often referred to as end scrapers.

Three of the four scrapers recovered from Wiacek are manufactured from exotic cherts and exhibit steeply retouched (80-95°) convex bit edges. Two of Onondaga chert (Figure 35:27,28) are nearly identical, both were manufactured by steeply retouching the distal end of parallel sided linear flakes dorsally, creating a convex bit edge measuring 13 mm in width. Unifacial retouch is continuous along both lateral edges on one specimen and on only one lateral edge on the other specimen. Ventral surfaces remain unmodified. Both scrapers terminate proximally in transverse snap fractures likely resulting from their use. Maximum thickness of 3 mm occurs along the bit edge of both specimens. They were recovered from H2F63, and 28S17W.

The third end scraper (Figure 35:29) of Hudson Bay Lowland chert is a large specimen and is complete measuring 46 mm long, 41 mm wide and 9 mm in maximum thickness. The steeply retouched convex bit edge measures 23 mm in length, 7 mm in height and occurs on the flakes proximal end adjacent to the intact cortical striking platform. Both lateral edges and part of the flakes distal edge, including a large lateral projection have been dorsally retouched but these edges show little usewear. This specimen is from H2F76.

The remaining scraper is made from a Huronian chert pebble that was split nearly in half probably by the bipolar technique. The ventral surface was then used as a striking platform to steeply retouch one end of the nodule creating the bit edge of the scraper, the remaining cortical surfaces of the tool being left intact. The specimen measures 22 mm in length, 18 mm in width and 13 mm in thickness. The bit edge measures 17 mm in width, is irregular in outline and possess an edge angle of 90°. Edge rounding is pronounced and some polish is noted. This piece is also from H2F63.

Projectile Points

The four Wiacek projectile points and fragments are morphologically intriguing. All are manufactured of Onondaga chert and judging from their extremely fine bifacial flaking, a characteristic that appears virtually unknown to Huron lithic technology, they were likely imported. Two specimens are point tip fragments that have been broken and simply discarded. One was found in Midden E and the other in F58. They offer little insight into point morphology, although the largest is 14 mm in length and exhibits concave lateral edges. Both exhibit tip abrasion, perhaps suggesting a secondary function as piercers or, less likely as drills since the wear is restricted to the very tips of the specimens.

Another point tip measuring 14 mm in length has straight lateral edges that exhibit fine bifacial flaking. The previously broken proximal edge of this specimen has however been steeply retouched in an attempt to salvage the point. This piece was found in H2F67 (Figure 35:31).

The remaining specimen is the basal portion of a Middleport sidenotched point. Although the tip is missing its maximum length can be closely estimated to 40 mm. Maximum width at the base is 25 mm and maximum thickness is 5 mm. As with the other point fragments, this specimen once exhibited finely executed bifacial flaking which is still evident on the lateral edges of the base and is witnessed by the flake scar remnants on either face of the tool. At a later stage the basal edge and alternate lateral edges of the blade have been beveled creating dull almost square edge cross sections. Most likely this point was imported from outside of Huronia, with its finely flaked edges intact. The steep beveling is probably the result of a prehistoric Huron's attempt to reshape the edges, after they were damaged, for continued use of the point (Figure 35:30). The specimen was a surface find in the vicinity of 10N60E of the excavation grid.

Three specimens described in the section entitled Edge Retouched Flake Tools (Table 29:3,4,5) may be construed as projectile points of local manufacture. They exhibit acute points which show little use between convergent retouched edges. The steeply retouched edges on these specimens resemble the retouch on several of the reworked points described above (Figure 35:9-11).

Drills

Aside from the possibility of drill wear on several projectile point tips a single flake fragment with a very finely pointed distal edge also exhibits use retouch and edge rounding on both lateral edges adjacent to the point and may also have functioned as a drill. The piece of Onondaga chert was recovered from H2F106 and measures 27, 16 and 6 mm in maximum length, width, and thickness respectively (Figure 35:32).

Onondaga Chert Biface

A large triangular biface of Onondaga chert was recovered from F48. The piece measures 62 x 34 x 10 mm and is barely more than a large flake. Ventral trimming has squared the short edge of the specimen while several thinning flakes have been removed from the dorsal surface (Figure 35:33). Usewear is extensive along both long edges and at the tip. The convex lateral edge is marked by a continuous series of usewear flakes removed from the dorsal face and considerable edge rounding and polish is evident suggesting a scraping function. The opposite lateral edge appears to have been heavily used resulting in the removal of flakes from the ventral face and contributing to the concave configuration of this edge. Edge rounding is also apparent here but to a lesser extent. The tip of the biface is rounded showing bifacial use retouch.

Miscellaneous Chipped Stone

A rectangular piece of chlorite schist measuring 68 X 32 X 7 mm exhibits bifacial flaking and crushing on one end and unifacial flaking and crushing on the other. Discontinuous areas of edge rounding occur along all four edges but are particularly intensive and more continuous along the convex sections of either lateral edge. The material's texture and wear pattern suggests probable use in grooving bone for producing long splinters such as those used for making awls. The piece was a surface find at 9S26E in House 1.

Celts

Eight pecked and ground stone tools, all made from chlorite schist are broadly referred to as celts. They have obviously been manufactured by a grinding technique virtually obliterating previous flaking and pecking stages. Despite a current trend to avoid functional classification of ground stone implements, the morphology of the Wiacek specimens argues for the reinstatement of such terms as adze and axe, at least with respect to this assemblage, in which three distinct tool forms are recognizable.

Four of the specimens (Table 31:1-4 and Figure 36:1-4) are larger, heavier implements with broad blades and steep edge angles (60° - 80°) that exhibit heavy use. The wear on the blade includes considerable edge rounding. Striae, which are oriented at right angles to the blade, as well as use retouch, are more pronounced on the convex face of the tools. Most are described as plano-convex in Table 31 but more precisely these specimens are asymmetrically biconvex. Three show a narrowing and/or thinning toward the pole end which, assuming that they were hafted, would have "wedged" the tool into its hafting element. These tools are best identified as adzes.

Table 31. Celt Descriptions

Provenience		Metrics (mm)					
		Length	Width Blade	Width Pole	Thickness	Blade Angle°	Longitudinal Section
1.	H2PM1	(82+)	47	--	29	70	Plano-Convex
2.	H2PM40	106	52	35	22	80	Biconvex
3.	15S12E	106	53	48	27	60	Plano-Convex
4.	H2F63	(78+)	40	--	21	70	Plano-Convex
5.	26S16W	75	51	49	17	70	Biconvex
6.	MD	87	24	17	18	50	Biconvex
7.	F26 & 27	100	16	--	13	40	Biconvex
8.	H2S	(45+)	--	21	10	--	?

A unique specimen (Table 31:5 and Figure 36:5) is manufactured from a thin oblong cobble. Symmetrically biconvex, its broad steep angled bit (70°) displays little abuse and striae, which are rare on either face, are oriented perpendicular to the blade. Notches measuring approximately 20 mm in length and a few millimetres in depth have been pecked into opposite lateral edges of the tool. The pole end includes a hammering facet suggesting a secondary function to the blade edge. This specimen was likely halfted and used as an axe.

Two remaining specimens and an additional tentatively identified pole end fragment (Table 31:6-8, Figure 36:6,7) offer details of a third morphological variation. These implements are generally smaller tools than those already considered, particularly in their width.

They are symmetrically biconvex in longitudinal cross section with acute angled bit edges (40-50°) showing little trauma. Striae are apparent but are very fine and are oriented perpendicular to the blade edge as with the heavier tools. The keen blade edges exhibit an incipient unifacial polish that is restricted to within 2 mm of the working edge. The only indication that these implements were hafted is the unifacial polish on the blade edge which suggests that contact between the blade and the material being worked was consistently biased towards one face of the tool.

Hammerstones

Nine hammerstones are all waterworn, rounded or elongate, granitic cobbles bearing hammering facets, particularly on their small ends but also occasionally on their broad faces. They range considerably in size, from 67 to 114 mm in their maximum length and from roughly 200 to 700 gms in weight. They were recovered from F13, F17, F26 and F62, H2F52, H2F88, H2F117, and one was recovered from plowzone within House 2.

Anvilstones

Six anvilstones exhibit hammering facets which are centrally located on one (3) or two (3) of their flatter faces. Three specimens also exhibit broad ground faces in conjunction with slightly pitted anvil surfaces and four show additional hammering facets on their ends or edges suggesting a secondary use. The six specimens range from 75 to 112 mm in maximum length and from roughly 400 to 700 gm in weight. They were recovered from H2F33, H2F36, M-E, one is from the plowzone, and another specimen was recovered from the House 3 test trench.

Mano

A tear-drop shaped cobble of diorite from H2F63 is naturally rounded and measures 92 by 65 by 45 mm. The broad end is flattened from abrasion likely through use as a mano while the narrow end exhibits a hammering facet. The remainder of the cobble is unmodified (Figure 36:11).

Abraders

Two abraders from Wiacek are considerably different in form. One recovered from Midden E consists of a diorite cobble fragment measuring 63 x 48 x 22 mm. Extending across the ventral face is a 15 mm wide and 4 mm deep U-shaped groove that has conceivably resulted from abrading a cylindrical object - possibly an arrow or spear shaft (Figure 36:10).

The second abrader consists of a fine grained waterworn sandstone cobble measuring 76 x 55 x 31 mm. The cobble is plano-convex in cross section. Fine striae parallel the cobble's long axis and cover most of both faces but are concentrated toward the central long axis on the planar face.

Miscellaneous Ground Stone

A tabular piece of phyllite recovered while shovel shining the House 1 interior, belongs to an unidentifiable or unfinished tool or ornament. This specimen is complete and trapeziform in plan view measuring 66 mm long, 39 mm wide, and 11 mm in thickness. Its four edges are perpendicular to either face and have been extensively ground creating striae that parallel the edge length. Neither face of the object shows much modification from its natural cleavage except a slightly beveled area that has been ground adjacent to the longest edge on both faces of the specimen (Figure 36:8).

Lithic Summary

The Wiacek lithic assemblage accounts for 23% of the cultural material recovered. Six hundred and sixteen of the 790 specimens represented are waste materials or debitage and these are predominantly cherts of local origin. The lesser occurrence of exotic cherts (particularly Onondaga chert) attests to their availability through trade.

The only core form represented at Wiacek is the bipolar core while the generally larger core forms, often referred to as random, rotated or block cores, are absent. The exclusive representation of the bipolar core over other forms is no doubt due to the small size of the pebble cherts available locally and the exhaustive reduction of any larger pieces of exotic chert that may have been imported.

The ratio of debitage to cores (6:1) attests to the generally small size of material worked (i.e. each core produced only few flakes) while the tool to debitage ratio (1:11) indicates extensive utilization of the scarce lithic resources that were available.

Edge retouched flakes and utilized flakes include several edge forms and wear patterns, suggesting various uses. The unifacial retouch and use retouch on most of these tools, however, indicate a unidirectional scraping mode regardless of the object material. This predominance of minimally worked "scrapers" and the scarcity of more formal scraper varieties, such as bifacial and snubnose scrapers, would appear to represent a technological adjustment to raw material scarcity on a par with the projectile point assemblage.

Several steeply retouched flakes exhibiting converging edges appear to represent locally manufactured projectile points. This identification is substantiated by lack of usewear and steeply retouched edges similar to those exhibited by more conventional point forms. (cf. Figure 35:9-11 and Figure 35:30,31). Similar edge retouched flake points are also described for the historic Huron (Fox 1971:139) and Southern Division Huron (Williamson 1983:Figure 40b).

The few examples of classic sidenotched or triangular Middleport point forms are all manufactured from Onondaga chert. These appear to have been imported in a finished form and have obviously been reworked as is discussed in the following section.

The ground stone assemblage from Wiacek possesses two distinct tool types conforming to the traditional definition of the terms adze and axe and a third small variant or celt whose small size and finely honed edges suggest light use. The remaining stone tool assemblage includes an assortment of hammerstones, anvilstones and abraiders of two varieties.

Reflections on Huron Lithic Craftsmanship Many archaeologists who have had the opportunity to study Late Woodland assemblages from Simcoe County are struck by the scarcity of debitage and the seemingly "impoverished" nature and number of the flaked stone tools recovered. This element of surprise may have arisen, in part, from our southern origins, where amongst the Neutral and perhaps also the Southern Division Huron (another story altogether), lithics account for substantial proportions of excavated assemblages and the tools exhibit a degree of craftsmanship par excellence. Consequently it is commonly held that the low frequency and "inferior" workmanship of historic Huron lithic assemblages represents a response to the acculturative adaptation of these peoples to European trade materials which undermined certain native technological traditions. The Wiacek site data indicate, to the contrary, that the attributes witnessed by Huron lithic assemblages are not simply an historic phenomena but have considerable time depth in the region.

The development of Iroquoian lithic technology in Simcoe County is understandable from an environmental perspective. The region simply lacks primary source cherts and, aside from imported materials, is dependent therefore on small nodules of pebble cherts available in the local tills. Since the small size of these nodules inhibits hand held direct percussion reduction and the production of suitably large flake blanks necessary for manufacturing bifaces, the use of local cherts is restricted to the bipolar technique to supply only the most basic of tools, utilizable flakes and minimally retouched flake tools.

Most often larger and more complex chipped lithic tools, or formalized tools from Huron components are manufactured from exotic (predominately Onondaga) cherts and were likely imported in a finished state. In the few instances where these finely crafted exotic chert bifaces have been repaired or reworked the interface between the workmanship of the primary and secondary craftsmen is obvious by the degree of control exercised over the medium. In other words it appears that the Huron artisan could not reproduce the original workmanship exhibited by the tool and rather than reject these rare and presumably costly items, made due with his own makeshift restoration. In conclusion it is suggested that the art of bifacial thinning was virtually unknown to Huron craftsmen.

Worked Bone, Shell and Teeth

Introduction

The assemblage of worked faunal material, accounts for less than 2% of the Wiacek artifacts (Table 16). Although limited, the specimens are representative of Middleport and Late Prehistoric forms. Table 32 lists the specimens recovered.

Table 32. Worked Bone, Shell and Teeth

Item	Frequency
Awls	8
Points	1
Ground Beaver Incisors	3
Modified Deer Phalanges	2
Bone Beads	4
Shell Bead	1
Bear Canine Pendant	1
Miscellaneous Bone and Antler	5
Total	25

Bone Awls

A complete awl made from the distal end of a tibiotarsus of a young turkey, measures 84 mm in length. It was recovered from H2F53 (Figure 37:1).

Seven ground pieces of bone, most of which appear to be linear splinters from mammalian long bones, likely represent awls. Five are fragments of the pointed distal ends and 2 others appear to represent awl midsection fragments. These specimens were recovered from H1F29, H1F48, H2PM59, H2F35(2 specimens), 22S15W and 27S17W.

Another specimen from H2F126 which represents either an awl fragment or waste material from the manufacture of similar implements, is a fragment of a large mammal longbone that has been deeply grooved, and snapped longitudinally (Figure 37:3).

Projectile Point

What appears to be a socketed bone projectile point from H2F55 was manufactured from a section of a large avian longbone. The piece is finely ground on all worked edges and also appears polished particularly on the beveled face of the implement (facing in figure 37:7). The polish, which seems excessive as a finishing technique for a projectile point, the lack of any signs of haft wear in the "socket", and the overall delicacy of the specimen may be suggestive of an alternative but unknown function.

The piece measures 31 mm in maximum length and possesses a proximal end that is oval in cross section measuring 7 x 11 mm.

Ground Beaver Incisors

Heavy grinding on the occlusal surfaces of three beaver incisors has resulted in this naturally concave surface appearing flat or slightly convex in form. All three specimens are longitudinally split and exhibit transverse breaks at similar lengths (30, 31 and 45 mm) perhaps a byproduct of heavy use and hafting. They were found in close proximity in House 2 features 63, 67 and 80 suggesting that they represent the remains of an individual's specialized craft. From his analysis of the Middleport Site, Wintemberg (1948) maintains that these modified beaver incisors may have functioned as chisels (Figure 37:4-6).

Modified Deer Phalanges

Two deer phalanges exhibit modification. One from H2F91 has been drilled through both its proximal and distal ends creating holes measuring 6 and 1 mm in diameter respectively. The phalanx's inferior surface, toward its proximal end, has been flattened by grinding (Figure 37:8).

The other phalanx, from 26S15W is also drilled through its distal end resulting in a 3 mm diameter hole. The distal inferior surface of this specimen is slightly flattened by grinding while the proximal end is absent due to breakage.

Bone Beads

Four ground and polished tubular bead fragments cut from longbone midshafts of large avian species were recovered. Two fragments H2F45, 26S14W are too small to provide bead metrics. The remaining two specimens from H2F37 and H2F45 mend to form the better part of a bead that measured 26 mm long and 10 mm in diameter (Figure 37:9).

Shell Bead

A single discoidal shell bead from H1F53 measures 5 mm in diameter, 2 mm thick and has a suspension hole 2 mm in diameter. It was recovered from the heavy fraction of a flotation sample.

Bear Canine Pendant

A deep groove, ground 3/4 of the way around the root of a bear canine, has facilitated its suspension as a pendant. In addition the root of the tooth has been ground off square. The piece was recovered from H1F23 (Figure 37:11).

Miscellaneous Bone and Antler

Four pieces of large mammal bone exhibit evidence of being ground or cut but are too fragmentary to determine their form. Three were from midden E squares 28S15W, 27S17W, 26S14W and one was from H2F117.

A piece of antler measuring 20 mm long and ground to a consistent diameter of 8mm is obviously a fragment of some larger implement, broken at both ends. The only other clue to its form is a shallow groove 1 mm wide and .5 mm deep that encircles one end of the cylinder. Wintemberg (1948:71) shows some "decorated bone awls" that are similarly notched from the Middleport Site. The specimen was recovered from H2F21.

Summary

The worked faunal materials from Wiacek are limited in number but constitute 2% of the assemblage, comparing similarly to other Middleport sites. There is, however a broad range of typical Middleport tool and ornamental forms represented. While few of the artifact types are particularly notable it is interesting that the two modified deer phalanges constitute 25% of the identifiable cervidae remains recovered.

CHAPTER IV

FAUNAL ANALYSIS

Introduction

This chapter deals with Wiacek site faunal remains. Discussion will be divided into two sections. The first concerns faunal method and theory - its goals, limitations and possible sources of bias. Since there are several incommensurable techniques currently employed in zooarchaeological studies the method of bone quantification implemented in this report is examined.

In the second section, description and analysis of Wiacek faunal remains will be examined on two levels: the site as a unit; and, by provenience (i.e., longhouse, midden). Patterns of refuse disposal, specialized activity areas and, perhaps, discrete familial units may be detected by comparative intrasite bone distribution analyses. Analysis of the Wiacek faunal assemblage, as a unit, is undertaken to provide information on subsistence patterns (i.e., diet, method of food procurement and preparation) and environment. Wiacek, compared with other Middleport faunal collections, may increase understanding of the developmental sequence of subsistence during Middleport times.

Faunal Method and Theory

Primary motives for analysis of faunal remains are: to aid in interpretation of economic-subsistence patterns; and, to reconstruct past environments (Butzer 1982:190; Grayson 1979:99).

Although ethnoarchaeological research has demonstrated that bone refuse is not necessarily randomly discarded (Gordon 1980; Yellen 1977:305), examination of faunal remains within their specific archaeological context is a fairly recent development (Burns 1979:123; Gould 1980:113). In past research, the tendency has been to assume random distributions of faunal material across sites, thereby justifying use of "the site" as the only unit of analysis (Bonnichsen and Sanger 1977:109).

Stewart's (1974) examination of twelve Nodwell longhouses, Burn's (1979) study of Draper House Two, and Wright's (1982) study of two Uren longhouses provide examples of analyses of patterning in bone refuse disposal on Iroquoian sites. However, results of these studies have been generally negative. No clusters of species or faunal classes could be discerned within the Draper or Uren longhouses. The only major pattern to emerge from analyses of intra-longhouse faunal remains was in density distribution of bone - amount of bone refuse in features of Uren longhouses tended to increase away from longhouse ends and from centreline towards bunklines, with large bunkline features containing most of the refuse (Wright 1982:19). Wright (1982:23) infers that these large bunkline features were kept open to be used as receptacles for waste material.

Inter-longhouse comparisons at Nodwell and Uren suggest that there are no appreciable differences in composition of faunal assemblages between houses of the same site (Stewart 1974:109; Wright 1982:16). Only two Nodwell houses deviate from this pattern of similarity. Stewart (1974:113) surmises that since these two houses were composed primarily of fish remains they were seasonally occupied, whereas the other ten houses, with predominately mammalian assemblages, were occupied year round.

Unfortunately, numerous environmental and cultural processes operating on sites can drastically reduce faunal populations, as well as mask or destroy any pattern in refuse disposal that may have existed. These may explain, in part, the mainly negative results produced by the aforementioned studies. Depositional biases that may affect archaeological assemblages will be briefly described below, for a detailed discussion of taphonomic processes influencing fossil and archaeological samples see Behrensmeyer and Hill (1980), Clark, Beerbower and Kietzke (1967) and Voorhies (1969).

Environmental factors affecting rate of bone preservation include: the nature of osseous material, soil chemistry, rate of deposition, and scavenger activity. Buried bone is less likely to disintegrate as fast or as completely as bone lying on the ground surface, which is subject to dehydration, oxidation and trampling (Butzer 1982:196) - that is if the bones have not already been devoured by carnivores (Binford and Bertram 1977:105; Lyon 1970:214). Once buried, bones are further subject to decomposition, especially in acid soils - as pH decreases destruction of bone increases (Gordon and Buikstra 1981:569). Particularly vulnerable to corrosion are small and fragile bones such as mammal ribs and most fish elements (Payne 1972a:68; Shackley 1981:182), and bones of immature or juvenile animals (Gordon and Buikstra 1981:569; Western 1980:47).

Method of food preparation is a cultural factor influencing differential bone preservation. Boiling or roasting animals whole renders bones friable and susceptible to disintegration (Chaplin 1971:14; Coy 1975:501). Thick walled, dense osseous materials (i.e., patellae, carpals, tarsals) are more likely to survive heat treatment than fragile bones (i.e., ribs, long bone shafts) (Merbs 1967:501). One technique of meal preparation practiced by several peoples, including the Huron, that maximizes food value and minimizes chances of bone preservation is to pound small cooked animals into an unrecognizable mass of flesh and bones prior to eating (Gould 1980:22, Tooker 1967:68).

Other cultural factors that can affect the proportional representation of skeletal elements on sites are: selective transportation of elements from kill site to habitation site; food sharing and redistribution: and, use of certain bones for tools (Binford 1978:9; Jolley 1983:68; Yellen 1977).

Sampling strategy and technique of excavation are recovery biases archaeologists can control, to some degree. Commonly employed techniques of excavation (such as shovelling, trowelling and dry sieving) favour recovery of large faunal fragments (Payne 1975:11; Struever 1968:353; Thomas 1969:395). The most complete recovery results are obtained through wet screening (Payne 1972a:29, 1975:16: Struever 1968:357); dry sieving results fluctuate depending on weather conditions, soil type, expertise of screener etc., (Payne 1972a:49). The use of fine mesh screens and flotation machines can, and has, altered interpretation of subsistence strategies implemented on certain sites (Clason and Prummel 1977:173; Finlayson 1971:20; Payne 1972a, 1975; Waselkov 1984).

The magnitude of destruction caused by these taphonomic processes will vary depending on local customs and environment. In general, ethnoarchaeological experiments indicate that samples recovered through excavation severely underrepresent the actual faunal population (Yellen 1977:305), sometimes by as much as 42% (Binford and Bertram 1977:97). Perkins (1973) maintains that, at the Beidha site, less than 1% of the faunal population was preserved.

The archaeological faunal assemblage collected is a sample of a larger depositional assemblage composed of both culturally and naturally deposited animal remains. Difficulties may arise when attempting to differentiate culturally deposited bones from animal remains unintentionally buried on sites. In this report, the remains of burrowing animals (i.e., frogs, chipmunks) that are substantially skeletally complete and display no evidence of being broken or heat altered will be considered naturally deposited intrusions.

Another difficulty facing analysts is selecting a method of quantification of taxonomic abundance from among the numerous techniques championed in zooarchaeological literature. Number of identified specimens per taxon (NISP) and minimum number of individuals per taxon (MNI) are the two most commonly employed techniques. Advantages and defects of these methods will be briefly discussed in the following paragraphs, for detailed critiques see Gilbert and Singer (1982), Grayson (1979), Klein and Gruz-Uribe (1984), Morlan (1982), and Ueperman (1973).

The main defects of NISP are: the number of skeletal elements fluctuates from species to species (Grayson 1979:201; Payne 1972b:68); burials skew abundance figures (Grayson 1979:201); and, most seriously, usage assumes independence of all bone fragments (Grayson 1973:432; 1979:202). Although the assumption of independence has rarely been considered valid, on certain sites extensive destruction of osseous material by myriad environmental and cultural forces has led some archaeologists to accept this assumption (Watson 1979:135).

Although MNI eliminates the bias resulting from interdependence, recent research into the behavior of MNI have detected numerous defects that have tempered enthusiasm for the approach (Gilbert and Singer 1982:21). Drawbacks of the MNI method of bone quantification include the following: MNI totals will differ depending on the particular method implemented, and there are several non-comparable methods of calculation (Bobrowsky 1982:173; Casteel 1977:126; Grayson 1973:438, 1979:204); MNI is a function of sample size and in large samples MNI figures underrepresent the most frequently occurring species, in small samples the relative importance of rarer species is exaggerated (Casteel 1977:126; Grayson 1978:60); MNI totals differ between faunal classes, MNI figures for fish and reptiles being the most conservative (Bobrowsky 1982:175; McPherron 1967:190); and, MNI counts in no way reflect actual numbers of individuals present on the site (Thomas 1969:394; Morlan 1983:64). It has been observed by Gejvall (1969) that to achieve accurate MNI counts an NISP of 300 per taxon is required, others feel that a considerably higher NISP is necessary (Hesse and Perkins 1974:151).

Clearly, both methods of quantification of taxonomic abundance have inherent problems; however, the Wiacek faunal sample is extremely fragmented and total number of identified specimens per taxon is too low to justify the added time necessary to calculate MNI totals of dubious merit. Therefore, NISP will be the sole method for quantification of taxonomic abundance in this analysis, and in order to reduce the possibility of skewing the sample, fragment counts below class at Wiacek do not include intrusive burials or more than one fish scale per feature.

The Assemblage

This section deals with the Wiacek faunal sample as a unit of analysis. The identified remains are analyzed class by class; discussion includes the types of species exploited, their preferred habitat, and methods of food procurement and preparation. This assemblage will then be compared with other Middleport faunal collections to assess Wiacek's place in the hypothetical models of Middleport faunal expolitation.

The Wiacek faunal assemblage derives primarily from undisturbed subsoil features and post molds, and from plough disturbed middens. Except for those portions randomly selected for SMAP flotation, all feature, midden and some post mould fill was dry sieved through 6 mm mesh screens. An overwhelming 96.3% of the faunal assemblage derives from flotation samples. (Affects of recovery techniques on faunal samples will be discussed in a later section.) As one would suspect, these remains are highly fragmented, weighing slightly more than half a kilogram in total. In addition, the sample is composed of large quantities of calcined bone, 8,791 (42.4%) in total.

Due, partially, to the fragmented nature of the faunal collection, 5,179 pieces (24.4%) could not be identified even to class; 1,551 (7.3%) of these are either mammal or bird bone fragments, and 3,628 (17.1%) are totally unidentifiable (Table 33). The remaining 15,989 fragments are predominately fish, mammals rank second and representation of other faunal classes is negligable (Table 34). Fish appears to have been the principal supplement to a diet consisting primarily of cultigens.

Table 33. The Wiacek Faunal Assemblage

Identification	f	%	wt. (g)	%
Class or lower	15,989	75.5	556.14	90.1
Mammalia or Aves	1,551	7.3	25.09	4.1
Unidentified	3,628	17.1	36.14	5.9
Total	21,168	99.9	617.37	100.1

Osteichthyes

Only 13.4% of the fish sample could be identified below class level (Table 35), the preponderance of which belong to the orders Perciformes and Cypriniformes (97.4%). The four largest families, in order of frequency of occurrence, are: Perch (Percidae), which comprises 38.3% of identified fish remains; Sucker

(Castostomidae), 30.4%; Catfish (Ictaluridae), 8.9%; and, Sunfish (Centarchidae), 6.2%. Remains of yellow perch (Perca flavenscens) are most numerous, of the fragments identified to species; larger fish, such as lake trout (Salvelinus namaycush), lake whitefish (Coregonus clupeaformis) and bowfin (Amia calva) form an insignificant portion of the Wiacek sample.

Table 34. Frequency and Weight of Wiacek Faunal Classes

Class	f	%	wt (g)	%
Osteichthyes	13,348	83.5	315.50	56.7
Mammalia	2,000	12.5	170.56	30.7
Amphibia	297	1.9	2.70	0.5
Aves	216	1.4	19.30	3.5
Pelecypoda	80	0.5	38.30	6.9
Gastropoda	32	0.2	2.90	0.5
Reptilia	15	0.1	6.87	1.2
Eucrustacea	1	0.0	0.01	0.0
Total	15,989	100.1	556.14	100.0

Although the site is adjacent to a tributary of Lover's Creek, the majority of fish in the Wiacek collection were probably taken from Kempenfelt Bay, a distance of approximately four kilometres from Wiacek. The most frequently occurring species in Lover's Creek and tributaries, according to a 1981 census, are white sucker (Catostomus commersoni), brook trout (Salvelinus fontalis) and several minnow varieties (Ruple 1981). Lover's Creek is spring fed and too cold for perch, catfish and sunfish, which prefer warm water (Craig, MNR wildlife biologist, pers. comm.) (Table 36). Prehistorically, Lover's Creek was even colder since development of the region has decreased the amount of shade and lowered the volume of water in the creek (Craig pers. comm.). Therefore, although suckers may have been taken from Lover's Creek, the other species were most likely fished from the bay. Indeed, yellow perch, white sucker and brown bullhead are all common Lake Simcoe species (MacCrimmon and Skoke 1970), and could have been collected in large numbers in warm weedy shallows of Kempenfelt Bay.

Table 35. Identified Osteichthyes Remains

Taxon	f*	%
Perch-like fish (Order Perciformes):		
Yellow Perch (*Perca flavescens*)	570	31.9
Walleye/Sauger (*Stizostedion* sp.)	38	2.1
Perch Family (Percidae sp.)	77	4.3
cf Largemouth Bass (*Micropterus salmonides*)	22	1.2
Pumkinseed (*Lepomis gibbosus*)	5	0.3
Pumpinseed/Bluegill (*Lepomis* sp.)	40	2.2
Rock Bass (*Amploplites rupestris*)	11	0.6
Sunfish Family (Centrachidae sp.)	32	1.8
Perch-like fish (Perciformes sp.)	191	10.7
Minnows and Carps (Order Cypriniformes):		
Sucker (*Catostomus* sp.)	380	21.3
Sucker/Redhorse (Catosomidae sp.)	164	9.2
Bullhead (*Ictalurus* sp.)	101	5.6
Bullhead/Catfish (*Ictalurus* sp.)	59	3.3
Minnow Family (Cyprinidae sp.)	51	2.9
Herring-like fish (Order Clupeiformes):		
Lake Trout (*Salvelinus namaycush*)	8	0.4
Lake Whitefish (*Coregonus clupeaformis*)	1	0.1
Whitefish subfamily (Coregoninae sp.)	1	0.1
cf Northern Pike (*Esox lucius*)	4	0.2
Pike/Muskellage (*Esox* sp.)	3	0.2
Herring-like fish (Clupeiformes sp.)	14	0.8
Codlike fish (Order Gadiformes:		
Burbot (*Lota lota*)	12	0.7
Bowfin (Order Amiiformes):		
Bowfin (*Amia calva*)	4	0.2
Total	1,788	100.1

* Frequencies have been corrected to include no more than one fish scale per species per feature. The remaining scales belong to:

Percidae sp.	155
cf *Micropterus salmonides*	25
Centrachidae sp.	13
Catostomus sp.	94
Total	287

Table 36: Identified Fish Species: Seasonality & Habitat*

Taxon	Ave. Body Length (mm)	Habitat	Spawning	
			Season	Location
Yellow Perch (*Perca flavescens*)	102-254	shallow waters of lakes, ponds or quiet rivers	spring	shallows of lakes or tributary rivers
Walleye (*Stizostedion vitreum*)	330-508	large, shallow tributary rivers or lakes	spring-early summer	rocky areas of white water, falls dams or coarse gravel shoals
Largemouth Bass (*Micropterus salmonides*)	203-381	small shallow lakes, bays or slow rivers	late spring-mid summer	marl, soft mud, quiet bays
Rock Bass (*Aploplites rupestris*)	152-254	rocky areas in shallow water of lakes, warm reaches of streams	early summer	swamps to gravel shoals
Pumpkinseed (*Lepomis gibbosus*)	178-229	small lakes, ponds or shallow weedy bays of larger lakes	early summer	shallow ponds, lakes or slow moving streams
White Sucker[1] (*Catostomus commersoni*)	305-508	warm shallow lakes, bays or tributary rivers of larger lakes	spring	gravelly streams, in moderate current
Brown bullhead[1] (*Ictalurus nebulosis*)	203-365	bottoms of shallow warm water ponds, weedy bays lakes, or sluggish streams	late spring-summer	mud or sand bottom of shallow lakes, coves, bays, or creek mouths
Northern Pike (*Esox lucius*)	457-762	clear, warm, slow, heavily vegetated rivers, or warm weedy bays	spring	vegetated flood plains of rivers, marshes, or bays of larger lakes
Lake Whitefish (*Coregonus clupeaformis*)	381	deep water	fall	stoney bottom of shallow water
Lake trout (*Salvelinue namaycush*)	381-508	cool water	fall	rubble bottom of lakes, at moderate depth
Burbot (*Lota lota*)	381	deep lake water or cool rivers	mid winter	sand or gravel shoals of lakes
Bowfin (*Amia calva*)	457-610	swampy, vegetated bays	spring	shallow vegetated waters of lakes or rivers

*information extracted from MacCrimmon and Skoke (1970) and Scott and Crossman (1973)

[1] Brown bullhead and white sucker were not positively identified in the Wiacek sample due to the difficulties inherent in attempting to distinguish between highly similar fish of the same genus rather these are common species, abundant in the region today, that were probably a part of the assemblage

Most of the fish listed in Table 36 are spring spawners: spring to early summer would have been the most efficient time to harvest these fish in large quantity. This does not mean that spring and summer were the only seasons fish were caught, or that Wiacek was a seasonally occupied village. Many of these fish could have been caught at any time of the year and, apparently burbot (Lota lota) is rarely available except during winter (Heidenreich 1971:210). In addition, fish may have been smoked or dried for winter consumption.

Method of Procurement, Processing and Preparation No artifacts recovered from Wiacek are directly attributable to the acquisition of fish, however mode of capture may be inferred. Techniques for harvesting fish include spearing, harpooning, angling and netting. Spears, harpoons and lines are thought to have been used to hook large fish (Cleland 1982), whereas, the presence of small and medium sized fish in an assemblage suggests use of nets and/or weirs (Cleland 1966:141). Since minnows and small perch and sunfish form a considerable portion of the Wiacek sample, nets and/or weirs were probably implemented.

Vertebrae can be identified to family or lower with a proper comparative collection and sufficient time (Casteel 1976:73), unfortunately as neither criteria was met in this case, a comparison of the ratio of cranial to vertebral elements per species is not feasible. However a crude comparison of cranial elements to vertebrae for the entire Wiacek sample suggests a disparity between the frequency of cranial to vertebral fragments (Table 37). Yellow perch, for example, have approximately 71 cranial bones and 40 vertebrae (Chiasson 1974); a ratio of almost 2 to 1. Table 37 shows that, at Wiacek, the frequencies are reversed - there are twice as many vertebrae as

Table 37. Proportional Representation of Fish Elements

Element	f	%
Cranial fragments	1269	13.7
Vertebrae	2977	32.1
Shafts (ribs, spines, pterygiophores...)	4176	45.0
Scales	555	6.0
Other post cranial elements	303	3.3
Total	9280	100.1

cranial fragments. These results suggest that fish were being processed (gutted and beheaded) at the fishing station. Perhaps only fish of relatively small size and no burden to transport (as well as those suckers that may have been harvested locally) were processed at the site.

Thermal alteration of fish remains has been an area of interest in most studies of faunal remains in light of a taboo documented by missionaries to the Huron. The Huron believed that they would not be successful at fishing if fish bones were thrown into a fire (Wrong 1939:188; Tooker 1967:64,67). Frequently this taboo has been cited by researches (Burns and Heathcote 1984; Jamieson 1929:117; Kapches 1981:130) as a possible explanation for the lack of calcined fish remains on Middleport sites. At Wiacek, however, 2559 of 13,348 or 19% of the fish remains show signs of being thermally altered.

The apparent discrepancy between the Wiacek assemblage and the historically documented taboo may be understood as it is specified in the references cited that the taboo was observed while fishing or while at the fishing station perhaps suggesting that observance of the taboo was not required at village sites such as Wiacek. The scarcity of calcined fish remains at other village sites may be a result of sampling bias. Perhaps a larger portion of the fish remains were calcined but did not survive excavation. Calcined fish remains are extremely friable and require fine screening and sorting to be recovered.

Mammalia

Only 307 (15.4%) mammalian fragments could be identified beyond class level; of the remaining 1,693 bones, 1,096 (64.7%) could be subdivided according to size (Table 38).

Table 38. Mammal Size Based on Bone Fragments

Size	f	%
Small (i.e., chipmunk)	252	23.0
Medium (i.e., woodchuck)	810	73.9
Large (i.e., deer)	34	3.1
Total	1096	100.0

Table 39. Identified Mammalian Remains*

Taxon	f	%
Gnawing Mammals (Order Rodentia):		
Eastern Chipmunk (*Tamias striatus*)	42	13.7
Red Squirrel (*Tamiasciurus hudsonicus*)	39	12.7
Woodchuck (*Marmota monax*)	23	7.5
Squirrel Family (Sciuridae sp.)	47	15.3
Beaver (*Castor canadensis*)	7	2.3
Muskrat (*Ondatra zibethica*)	3	1.0
Mice and Rats Family (Cricetidae sp.)	11	3.6
Rodent (Rodentia sp.)		
Rabbits, Hares and Pikas (Order Lagmorpha):		
cf Eastern Cottontail (*Sylvilagus floridanus*)	3	1.0
Cottontail/Snowshoe Hare (Leporidae sp.)	24	7.8
Flesh-Eaters (Order Carnivora):		
cf Dog (*Canis familarus*)	14	4.6
Red Fox (*Vulpes vulpes*)	5	1.6
Dog, Fox, and Wolf Family (Canidae sp.)	3	1.0
Raccoon (*Proycon lotor*)	7	2.3
Mink (*Mustela vision*)	5	1.6
Mink/Longtail Weasel (*Mustela* sp.)	2	0.7
Marten (*Martes americanus*)	2	0.7
Fisher (*Martes pennanti*)	2	0.7
Black bear (*Ursus americanus*)	1	0.3
Carnivore (Carnivora sp.)	22	7.2
Deer, Cow and Bison (Order Artiodactyla):		
Whitetailed deer (*Odocoileus virginianus*)	8	2.6
Moles and Shrews (Order Insectivora):		
Shrew Family (Soricidae sp.)	1	0.3
Total Identified Mammals	307	100.2

*These totals do not include:

3 intrusive historic bones - 2 cow (*Bos* sp.)
- 1 pig (*Sus scrofa*)

135 bones from intrusive natural burials
- 94 mice (Cricetidae sp.)
- 24 shrew (Soricidae sp.)
- 17 chipmunk (*Tamias striatus*)

human remains (7 teeth) (see section on Human Remains)

The results of this general size classification indicate that Wiacek mammals were predominately small to medium in size; large mammals constitute a minor fraction of the total. These findings are in agreement with the list of identified mammalian remains presented in Table 39. The Scuiridae family (squirrel, chipmunk and woodchuck) accounts for 49.2% of all mammalian remains identified below class. The three most prominent species, in order of frequency of occurrence, are: eastern chipmunk (*Tamias striatus*); red squirrel (*Tamiascuirus hudsonicus*); and, woodchuck (*Marmota monax*). Deer (*docoileus virginianus*), which forms a major part of other Middleport mammalian assemblages (such as Milroy, Nodwell and Slack Caswell), are scarce at Wiacek.

The preferred habitat of mammals, listed in Table 41, suggests utilization of diverse environments including aquatic (muskrat, mink, raccoon, beaver), forested (marten, fisher, bear) and semi-open woodland (deer, fox) habitats. However, the scarcity of mammals which require semi-open country for survival, in the Wiacek sample, implies that much of the region was still covered in primary forest. Primary forests do not provide suitable habitat for wildlife as they lack undergrowth, a vital source of food and shelter; thus, the paucity of mammalian remains in general (a mere 12.5% of the total faunal assemblage) also argues for a mature forest environment.

Age and Pathology Little of significance can be gleaned from analysis of age determination. Only 151 of the bones identified to species could be broadly classified as adult, subadult, immature or juvenile. The majority, 129 (85.4%) bones, represent adults, (this means longbones, for example, are completely fused); 6 (4.0%) bones belong to subadults, (longbones fused but epiphyseal line distinct); and, 16 (10.6%) bones come from immature individuals (epiphyses and diaphyses are separate). There were no juvenile mammals in the sample, but then these porous and fragile bones are least likely to survive chemical and physical deterioration.

The woodchuck sample exhibits the highest number of non-adult bones, with 3 subadult and 6 immature specimens, followed by *Canis* sp. with 1 subadult and 2 immature bones. The remaining subadult bones belong to red fox (1) and deer (1); and, the remaining immature bones belong to eastern chipmunk (2), red squirrel (2), Leporidae sp. (1), raccoon (1), and beaver (1).

None of the bones display any pathological disorder.

Method of Procurement, Processing and Preparation Since there is a decided lack of lithic or bone projectile

Table 40: Identified Mammal Species: Seasonality and Habitat*

Taxon	Ave. Weight, (adult male)	Habit	Preferred Habitat
Eastern Chipmunk (Tamias striatus)	97 g	diurnal, winter hibernator	dry hardwood forest, semi-open country (hedgerow, garden, fence...)
Red Squirrel (Tamiasciurus hudsonicus)	193 g	diurnal, active in winter	easily adaptible to varied environments, decidous woodland, evergreen forests
Woodchuck (Marmota monax)	3.5 g	diurnal, winter hibernator	pasture, fence rows, bushy ravine; easily trapped; prospers with introduction of agriculture
Muskrat (Ondatra zibethica)	1.13 kg	nocturnal or crepuscular	vegetated ponds, slow moving shallow streams
Beaver (Castor canadensis)	15-35 kg	nocturnal, active in winter	marshes of forested regions and wetlands of swamps, slow moving streams; lakes
Eastern Cottontail (Sylvilagus floridanus)	1.2 kg	crepuscular and nocturnal active in winter	extremely adaptable-meadows, fence rows, weedy shrub area, open woods
Red Fox (Vulpes vulpes)	3.6-6.8 kg	nocturnal, active in winter	brush fringes bordering meadows, semi-open county, agricultural areas
Raccoon (Procyon lotor	8.6 kg	nocturnal, partial hibernator	wooded areas near streams or lakes
Mink (Mustela vision)	2.07 kg	nocturnal, active in winter	stream banks, lake shores, forest edge, large swamps
Marten (Martes americanus)	995 g	nocturnal, active in winter	mature evergreen forests, though can survive in several different forest types
Fisher (Martes pennanti)	3.7 kg	nocturnal and diurnal, active in winter	forest with good overhead cover, usually near water
Whitetailed Deer (Odocoileus virginianus)	85.5-95.9 kg	crepuscular, active in winter	secondary growth woods, shrub borders of farmlands, cedar swamps, benefits from agriculture
Black Bear (Ursus americanus)	169 kg	nocturnal, hibernate in winter	heavily wooded areas, swamps

* information extracted from Banfield (1977), Burt (1972), Cameron (1977), Euler (1977), Douglas and Strickland (1977), McDonnel (1977), Strickland and Douglas (1977).

Table 41. Proportional Representation of Mammalian Elements

Portion	Element	Size					
		small		medium		large	
cranial	skull	95	23		82		3
				157	75	7	4
	clavicles		2		0		0
	scapulae		5		0		0
	humeri		8		1		0
forelimb	ulnae	46	11	18	5	1	0
	radii		11		2		0
	carpals		6		3		1
	metacarpals		3		7		0
	sterna		0		0		0
axial	vertebrae	24	17	63	49	0	0
	ribs		7		14		0
	innominates		5		1		0
	femora		11		5		0
	patellae		0		0		0
hindlimb	tibias	49	10	21	5	0	0
	fibulas		0		1		0
	tarsals		19		2		0
	metatarsals		4		7		0
	carpals/tarsals		0		1		0
	metapodials		12		11		0
misc.	sesamoids	246	0	488	2	25	1
	phalanges		26		63		3
	longbones		208		411		21
Total		460		747		33	

points in the Wiacek artifact assemblage it may be suggested that many of the arrow or spear points used in hunting were made from perishable material. Alternatively, and more plausibly, the scarcity of large mammal bone and lithic projectile points also argues for a lack of large mammals in the Wiacek environs. Most of the species represented at Wiacek are small or medium sized mammals and may have been taken by trapping in and around the village.

In general, medium and small mammals are more skeletally complete than large mammals, which are represented only by teeth, phalanges and miscellaneous limb fragments (Table 41). This disproportionate representation of large mammal remains may reflect selective transport of certain meat portions due to scarcity of large game, notably deer, in the Wiacek environs and the difficulty of hauling large game great distances.

Three of the mammals identified to species - beaver, bear, and deer, are represented by elements that were or can be fashioned into tools, ornaments and/or gaming pieces. The sole black bear element recovered is a canine that has been worked into a pendant. Six of the seven beaver bones are incisors, three of which have been worked. Similarly, three of eight deer fragments recovered are phalanges, and two have been ground and drilled. Modified and unmodified teeth, are the only elements of bear and beaver recovered (with one exception) suggesting that these teeth may have been curated items and not part of the diet during the time of site occupation.

A virtual absence of evidence of butchering activity is common for Middleport faunal assemblages and has been noted at Nodwell (Stewart 1974), Elliot (Stimmel 1978:18), Slack Caswell (Jamieson 1979:122) and Moyer (Wagner, Toombs, and Riegert 1973:93). Only two *Canis* sp. bones in the Wiacek sample have cut marks. The majority of Wiacek mammals are small to medium in size and were probably cooked whole and then dismembered.

A total of 1,466 of 1,865 (78.6%) mammalian remains were thermally altered. Mammals, therefore, were cooked in a manner that calcinized their bones, and/or the remains were tossed unceremoniously in the fire after dinner.

Human Remains

Seven human teeth were the only evidence of human remains recovered during excavations. Exterior house feature 26/27 contained two complete permanent teeth (one lower right canine, one lower right lateral incisor) and two fragments of permanent teeth (part of a lower molar crown, probably M1 or M2 and part of the crown and neck of an upper left premolar); H2F117 contained two deciduous teeth (one lower medial incisor and one upper left first molar); and the remaining tooth (one deciduous upper right medial incisor) came from H2F132. Dr. Michael Spence kindly agreed to analyze the teeth and a summary of his findings are presented in the following paragraphs.

There was no evidence of caries on any of the teeth, only the canine in F26/27 displays a slight trace of hypoplasia. The F26/27 teeth probably came from the same individual, based on the wear pattern, that of a young or middle aged adult. Neither the incisor nor the canine display a tuberculum dentale. Nor do any of the teeth show evidence of trauma, and it would have required very extensive damage to affect the mixture of the teeth (upper and lower, right and left) recovered. Rather the mix of mandibular and auxillary teeth and the scarcity of other teeth in F26/27 suggest that these teeth were not in the bone when deposited.

All of the deciduous teeth display wear, and those from H2F117 probably came from the same individual - a child two to five years in age. The H2F132 deciduous tooth may also be from this child, however it is impossible to be certain. It does not appear that these teeth fell out naturally as the roots are still attached. If the deciduous teeth had been lost through normal growth the roots should have been missing as they are largely resorbed before tooth loss. Since the roots were present and still well developed, normal loss seems unlikely. Therefore, as was the case with the permanent teeth from F26/27, these teeth appear to have been separated from the bone after death.

The most likely scenario for these specimens is that they are displaced elements from exhumed primary burials - as the bodies were being moved from their place of primary burial (scaffold, pit etc.) the teeth fell out. The pits in which they were found represent either primary burial pits, or refuse pits in which the loose teeth were re-deposited as the body was removed to a secondary burial place. The contents of H2F117 (large quantities of tobacco in particular) suggests that this was either the primary burial site or the pit into which the teeth, along with residue/offerings from the re-burial ceremony were deposited.

Aves

Wiacek bird remains are limited both in number (only 1.4% of fragments identified to class) and species (Table 42). Grouse (Tetraonidae sp.) and Passenger pigeon (Ectopistes migratorius) are the most frequently occurring family and species identified. Wild turkey is represented by an awl and therefore may have been a curated object and not part of the Wiacek diet.

Table 43 provides information concerning habitat and range of the few avian species identified. These birds inhabit diverse environments - aquatic, primary and secondary forests. However, the general scarcity of avian remains suggests that primary forest cover around the site was fairly extensive. Grouse could have been hunted year round, whereas the migratory Canada goose and Black duck could have been caught only during summer months. The extinct Passenger pigeon was another migratory bird that bred in southern Ontario during summer.

The majority of bones that could be broadly classified according to age group belong to adults or subadults. Both the Canada goose and Wild turkey bones were from immature individuals. None of the bones displayed any sign of pathological disorder.

Table 43. Identified Avian Species: Seasonality and Habitat*

Taxon	Range	Habitat
Ruffed Grouse[1] (Bonasa umbellus)	permanent resident	secondary growth deciduous forest and mixed hardwood, with shrubby areas and clearings; rolling country with pockets of wetland
Spruce Grouse[1] (Canachites canadensis)	permanent resident	coniferous and mixed hardwood forests, forest edge, older burntland
Black Duck[2] (Anas rubripes)	summer resident	shallow margins of lakes, ponds
Canada Goose (Branta canadensis)	summer resident	lakes, rivers, bays, grassy field
Passenger Pigeon (Ectopistes migratorius)	summer resident	mature deciduous forests, now extinct. Migrated in large flocks, easily slaughtered
Wild Turkey (Meleagris gallopavo)	permanent resident	mature deciduous forest, exturpated

1. Both Ruffed and Spruce Grouse can be found in the Simcoe region (Craig pers. comm.) and could not be distinguished skeletally.

2. Although Black Duck and Mallard are difficult to differentiate skeletally, the mallard is thought to be a recent introduction in the area (Craig pers. comm.).

* information extracted from Cleland (1966), Godfrey (1966), Dawson (1976), Craig (pers. comm.).

Table 42. Identified Avian Remains

Taxon	f	%
Pheasants, Grouse, Curassows....(Order Galifromes):		
Ruffed or Spruce Grouse (*Bonasa umbellus* or *Canachites canadensis*)	26	54.2
cf. Wild Turkey (*Meleagris gallopavo*)	1	2.1
Pigeons, Doves, Sand-Grouse (Order Columbiformes:		
Passenger pigeon (*Ectopistes migratorius*)	16	33.3
Geese, Ducks, Swans, Screamers (Order Anseriformes):		
Black Duck or Mallard (*Anas rubripes* or *platyrhynchas*)	1	2.1
Canada Goose (*Branta canadensis*)	1	2.1
Duck, Geese, Swans (Anatidae sp.)	2	4.2
Owls (Order Strigiformes)		
Family of Typical Owls (Strigidae sp.)	1	2.1
Total	48	100.1

The sample of Wiacek grouse and passenger pigeon are fairly skeletally complete. Butchering marks were not apparent on any of the avian bones in the Wiacek sample. Again this may mean that birds were cooked prior to dismemberment, 128 of 216 (59.3%) of the avian bones are burned or calcined.

Amphibia

All amphibian remains belong to Anura sp., the order of frogs and toads. No identification below order was feasible due to inadequate comparative collections; however, in size the bones are comparable to leopard frog (*Rana pipiens*).

Although 297 Anura sp. elements were recovered, 168 are considered intrusive and eliminated from the analysis. The remainder may have been a deliberate dietary supplement. It is also conceivable that some Anura sp. were unintentionally introduced into the assemblage as part of the stomach contents of muskrat, pike and other frog loving animals.

Sixteen of 129 (12.4%) Anura sp. bones were calcined; and all parts of the skeleton are represented in the sample (there was no predilection for frog legs). The Anura sp. were probably caught in spring to fall as frogs and toads hibernate in winter.

Pelecypoda

A total of 80 shell fragments were recovered during excavation, seven of which could be identified to the family of fresh water pearly mussels, Unionidae. No Unionidae fragments were sufficiently complete to allow identification to species. Four belong to the genus Ellipto, being either Elliptio companata or Elliptio dilatata, both fairly common species found in rivers and lakes of southern Ontario (Clarke 1981).

Reptilia

All reptile remains belong to the order Chelonia (turtles) and are represented in the Wiacek sample exclusively by shell fragments. Only two shell fragments could be identified to species, one belongs to Blanding's turtle (Emyoidea blandingi), the other to Painted turtle (Chrysemys picta). Both species inhabit quiet waters and are available in spring and summer (Froom 1975). The majority of shell fragments (11 of 15) are calcined.

Gastropoda

No determined effort was made to collect gastropods during excavation, the 32 shells saved were recovered primarily from flotation samples. These snails are not considered a portion of the diet but may be useful as micro-environmental indicators, if systematically collected.

Nineteen snails were identified to species: Helicodis parallelus (9), common in rich woods, under moss, fallen trees etc.; Zonitoids arboreus (6), a common Ontario species that prefers hardwood groves although it survives in pine woods or open fields; Succinea ovalis (3), widespread in Ontario; and, Triodopis tridentata (1), abundant in southern Ontario anywhere there is shade and moderate moisture, such as in amongst dead leaves or wood (Oughton 1948).

Eucrustacea

One crayfish cheliped was discovered in the float sample. This specimen is calcined and may have entered the sample as part of the stomach contents of a fish.

Wiacek Site Faunal Distributions

In the following section patterns of distribution of the faunal remains discussed above will be examined within site; between longhouses; and, within longhouses.

In order to minimize error due to varying sample size, only floated samples are used in this analysis.

Intrasite Comparison An analysis of faunal distribution across Wiacek suggests some patterning in refuse disposal; however, due to small sample size, these results can only be viewed as tentative.

The highest density of faunal material per litre of flotation sample derives from house features (13,368 bones in total, 8.8 fragments per litre) followed by Midden E (449 bones in total, 1.4 per litre) and the lowest density of faunal recovery was in features outside houses (313 bones in total, 0.6 per litre).

There are dissimilarities in composition of house and midden faunal assemblages. Midden E is composed of larger and heavier fragments and has a lower proportion of fish to mammal. The fish to mammal ratio in House 1 and 2 combined is 7 to 1, in Midden E the ratio of fish to mammal as 4 to 1. Seventy-seven percent (26 of 34) of all large mammal bones were recovered from Midden E and 88% (30 of 34) of large mammal remains derive from outside the houses. House samples of faunal material weigh a total of 477.99 grams, an average of .03 grams per bone whereas Midden E bones weigh 58.81 grams, an average of 0.13 grams per bone.

The sample is admittedly small and it is therefore difficult to assess its significance. These findings may be due to the differential preservation of bone in the plough disturbed Midden E sample. Alternatively, these results may indicate the selective discard of larger bones in refuse heaps (unobtrusive bones that escaped detection eventually fell or were swept aside into open house pits). Similar results have been obtained by Kenyon (1978:6).

If midden samples are composed of higher proportions of large bones and mammal remains, as seems apparent, then future researchers should plan sampling strategies to adjust for this biasing factor. In addition, analysists interpreting faunal subsistence strategies based on either house or midden samples alone should be aware of this probable biasing factor in interpreting subsistence patterns.

Intra-Longhouse Comparison House 1 differs from House 2 in that House 1 contains less osseous material per litre floated, fewer species and a greater percentage of calcined bone. House 2, as indicated in Table 44, contains over six times more faunal material than House 1. In addition, House 1 has a limited variety of species, lacking walleye/sauger, lake trout, pike sp., bowfin, whitefish, mink raccoon, muskrat, marten fisher, black duck/mallard, turkey, Blanding's turtle and painted turtle.

House 1 has a smaller ratio of fish to mammals (3:1) than House 2 (8:1); however, this may be due to higher proportions of calcined bone in House 1 (Table 45, Figure 23) as mammal bones stand a better chance of surviving calcination than fish bones. The fact that House 1 contains less fauna per litre of flotation indicates that this house was not occupied as long as House 2. The large proportion of calcined bones would appear to suggest that the house may have burned; unfortunately, there does not appear to be any structural (i.e. burnt post molds) or artifactual (i.e. fired waste clay, high percentage of valuables) evidence to support the idea that House 1 was abandoned as a result of fire.

Inter-Longhouse Analysis Very little specific information can be gleaned from analysis of inter-longhouse faunal distributions. This is due, in part, to the erratic method of taking float samples (mostly ash pits were selected because they generally contain more fauna and flora). In broad terms, however, features along the central corridor, particularly between the rows of bunkline and support posts, seem to hold the greatest amount of faunal material, whereas bunkline and storage end features are relatively devoid of faunal fragments. The same results are obtained using number of species per feature.

The distribution of faunal material seems to suggest that refuse was swept away from areas immediately adjacent to hearths and fell into open pits in the corridor. Unlike large bunkline features at Uren which are thought to have been used as secondary refuse deposits (Wright 1982), large storage features at Wiacek were not used as refuse pits.

There does not appear to be any pattern to distribution of species within each longhouse. The predominate species, such as yellow perch, are dispersed throughout the longhouses. Only bowfin, of the rare species, has a somewhat limited distribution to features around the northernmost hearth in House 2. This lack of patterning may mean that food was shared among all longhouse residents, or it may be the result of biases (i.e., sampling errors, carnivore activities).

Middleport Faunal Exploitation

It is a practice among analysts to compare assemblages of sites of the same period in an effort to determine subsistence trends (for example, Naylor and Savage 1984 and Prevec and Noble 1983). In this section, possible developmental sequences of Middleport faunal exploitation will be discussed.

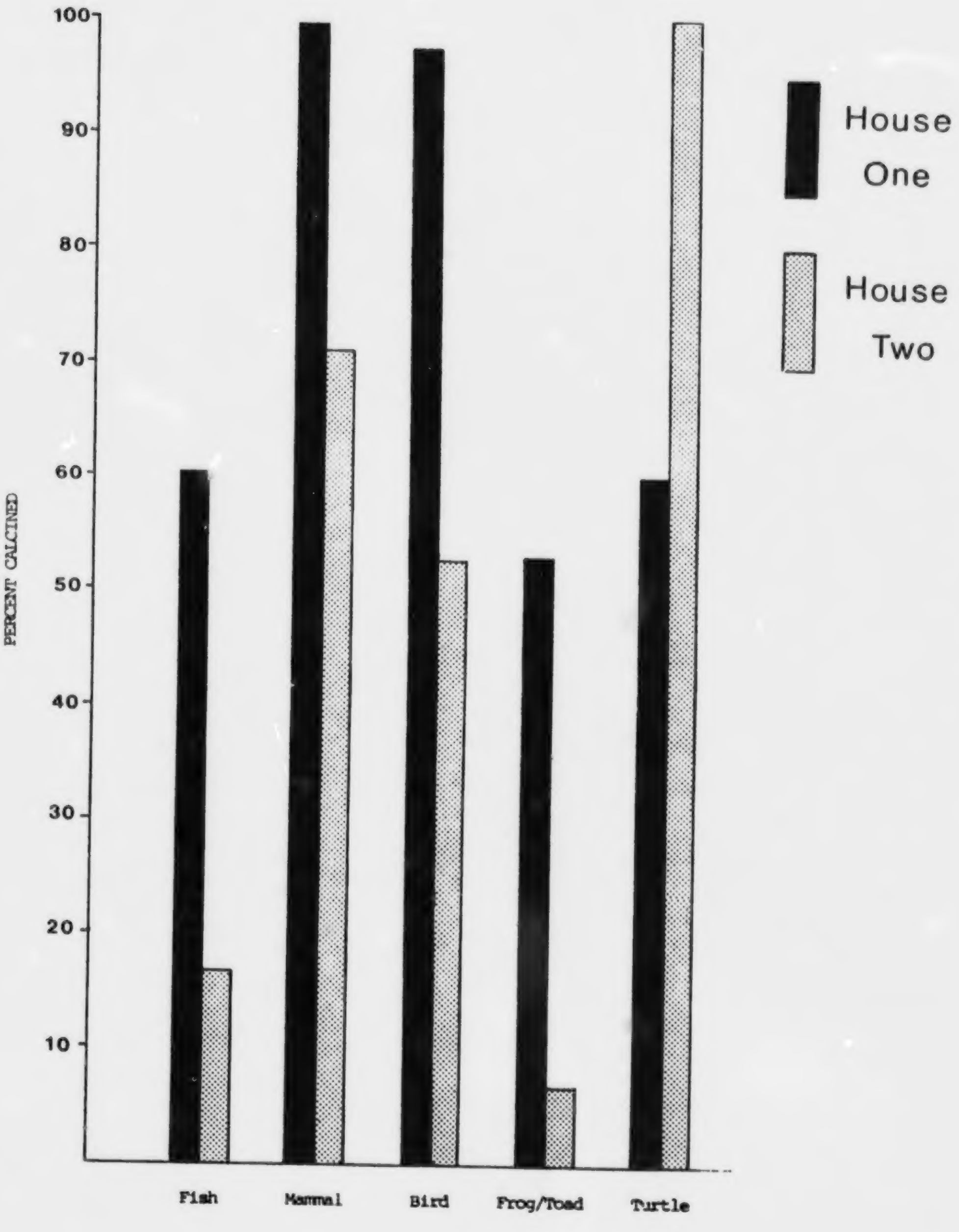


Figure 23. A Comparison of Calcined Faunal Remains From House 1 and House 2

Table 44. Floated Samples from House One and House Two, By Class

	House 1 486*			House 2 1,021*		
Class	f	f/1	%	f	f/1	%
Osteichthyes	1,304	2.7	71.7	10,052	9.9	87.0
Mammalia	440	0.9	24.2	1,207	1.2	10.5
Aves	46	0.1	2.5	141	0.1	1.3
Amphibia	17	0.0	0.9	101	0.1	0.9
Reptilia	5	0.0	0.3	4	0.0	0.0
Pelecypoda	8	0.0	0.4	43	0.0	0.4
Total	1,820	3.7	100.0	11,548	11.3	100.1

* Total litres floated

Table 45. Calcined Bone From House One and House Two, By Class

	House 1		House 2	
Class	f	%	f	%
Osteichthyes	768	60.8	1,685	16.8
Mammalia	439	99.8	867	71.0
Avaes	45	97.8	75	53.2
Amphibia	9	52.9	7	6.9
Reptilia	3	60.0	4	100.0
Total	1,264	70.8	2,628	22.8

Middleport subsistence economy was based on corn horticulture, supplemented by wild game and fish (Jamieson 1979:115, Kapches 1981: 231, Noble 1975). Jamieson (1979:129) says of this period that "Earlier Middleport sites appear to be reliant upon larger game animals, in contrast to later sites, which have a more diversified subsistence base." Kapches (1981:228), based on Markham focus sites, surmises that "Fishing was an important subsistence activity in the earlier sites, while hunting increased in significance at the later sites."

Wiacek, a late Middleport site with a predominant fish assemblage, does not appear compatible with either developmental sequence. Wiacek has the highest fish representation of Middleport sites in this survey - early or late (Table 46). Deer is an essential component of other assemblages, whereas deer is scarce at Wiacek: the most frequently occurring mammal is eastern chipmunk (Table 47).

Disparity in proportional representation between Wiacek and other Middleport faunal assemblages may be due to micro-environmental variations in faunal populations. If, as seems evident and most logical, subsistence was based on exploitation of locally available species (Jamieson 1979:128), then villages adjacent to well stocked lakes would contain a higher percentage of fish remains. Temporally, as mature forests are cleared for planting and secondary forests develop in abandoned fields, deer remains should become increasingly prevalent as Kapches (1981) suggests. Deer are not common in the mature maple-beech forest that characterize Wiacek's environs and this is reflected in the sample recovered.

Another factor that may account for variations in Middleport faunal samples, notably the scarcity of fish and/or small mammals, is the bias inherent in certain recovery techniques. Unfortunately, excavation techniques are seldom detailed in site reports. Faunal material at Elliot, excavated in 1960-61, was recovered through "trowelling and spot screening" (Stimmel 1978). Presumably, similar techniques were implemented on other sites excavated in the 50's and 60's. Flotation samples were collected at Slack Caswell and Crawford Lake, however, the extent and method of sampling was not reported.

In order to assess affects of flotation on faunal sample recovered, Wiacek screened and floated fractions were separated for comparisons. As mentioned earlier the preponderance of osseous material was recovered through flotation (Table 48). A comparison of faunal classes,

Table 46. Middleport Faunal Assemblages, by Class *

Class		Thompson	Elliot	Robb	New	Moyer	Milroy	Slack Caswell	Crawford Lake	Wiacek
Recovery Technique		?	S	?	?	?	?	F	F	F
Osteichthyes	f	69	1,223	367	1,180	378	86	666	4,462	13,348
	%	43.4	62.0	30.8	43.1	8.0	5.7	9.5	79.1	83.7
Mammalia	f	36	483	557	1,189	3,083	1,373	5,418	709	2,000
	%	22.6	24.5	46.7	43.5	65.1	90.6	76.9	12.6	12.5
Aves	f	18	202	105	151	581	33	77	114	216
	%	11.3	10.2	8.8	5.5	12.3	2.2	1.1	2.0	1.4
Reptilia	f	4	18	13	25	244	19	67	5	15
	%	2.5	0.9	1.1	0.9	5.2	1.3	1.0	0.1	0.1
Amphibia	f	0	9	0	80	0	2	74	326	297
	%	0.0	0.5	0.0	2.9	0.0	0.1	1.1	5.8	1.9
Pelecypoda	f	32	37	150	111	447	3	741	25	80
	%	20.1	1.9	12.6	4.1	9.4	0.2	10.5	0.4	0.5
Total	f	159	1,972	1,192	2,736	4,733	1,516	7,043	5,641	15,956
	%	99.9	100.0	100.0	100.0	100.0	100.1	100.1	100.0	100.1

* information extracted from Burns and Heathcote (1974), Jamieson (1979), Kapches (1981)

? recovery technique not mentioned

S trowelled and spot screened

F screened with some flotation

Table 47. Top Five Genus/Species Identified in Middleport Faunal Assemblages

Site	Species	f	%	Site	Species	f	%
Elliot	catfish sp.	415	38.2	Robb	deer	70	21.3
	deer	105	9.7		dog/wolf	44	13.4
	pike sp.	86	7.9		catfish sp.	38	11.6
	large/ smallmouth bass	60	5.5		suckerssp.	30	9.2
	passenger pigeon	56	5.2		woodchuck	14	4.3
	Total	722	66.5		Total	196	59.8
New	deer	97	20.5	Nodwell	deer	1046	21.0
	yellow perch	60	12.7		sucker sp.	704	14.2
	eastern chipmunk	48	10.2		woodchuck	622	12.5
	catfish sp.	47	9.9		dog/wolf	609	12.2
	red squirrel	41	8.7		walley/sauger	323	6.5
	sucker	41	8.7		Total	3304	66.4
	Total	334	70.7				
Slack Caswell	deer	113	26.1	Milroy	deer	563	77.9
	dog/wolf	79	18.2		dog/wolf	71	9.8
	sucker sp.	29	6.7		waipiti	34	4.7
	catfish sp.	22	5.1		racoon	21	2.9
	spotted turtle	20	4.6		beaver	16	2.2
	Total	263	60.7		Total	705	97.5
Crawford Lake[1]	catfish sp.	505	50.1	Wiacek	yellow perch	570	38.1
	deer	318	31.5		sucker sp.	380	25.4
	pike sp.	51	5.1		catfish sp.	160	10.7
	sucker sp.	40	4.0		cf. pumpkinseed	45	3.0
	eastern chipmunk	15	1.5		eastern chipmunk	42	2.8
	Total	929	92.2		Total	1197	80.0

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* information extracted from Burns and Heathcote (1974), Kapches (1981), Jamieson (1979) and Stewart (1974).

[1] these numbers are based on a preliminary report in which no birds had been identified

Table 48. Faunal Recovery From Waicek Features: Screened Versus Floated Sample

Recovery Technique	Feature Volume (litres)		Faunal Material Recovered	
	f	%	f	%
Screened	21,625.8	91.8	523	2.6
Floated	1,937.0	8.2	19,618	97.4
Total	23,562.3	100.00	20,141	100.0

listed in Table 49 demonstrates that, although fish predominate both screened and floated samples, in screened samples the relative importance of mammals and birds to fish increases, and amphibians are absent. These findings substantiate results obtained at the Archaic McIntyre site, wherein 3122 mammals and 710 fish (a ration of 4:1) were recovered from screening, and 24,347 mammals and 53,243 fish (1:2) were recovered through flotation (Waselkov 1984).

Table 49. Wiacek Screen and Float Samples by Class

Class	Screened		Floated	
	f	%	f	%
Osteichthyes	553	k68.7	15,815	84.2
Mammalia	193	24.9	1,807	11.9
Aves	24	3.1	192	1.3
Amphibia	0		297	2.0
Reptilia	3	0.4	12	0.1
Pelecypoda	19	2.5	61	0.4
Gastropoda	4	0.5	28	0.2
Eucrustacia	0		1	0.0
Total	776	100.1	15,213	100.1

A comparison between floated and screened samples of Wiacek fish remains identified to genus/species indicates that rank and relative frequency of the three main species - perch, sucker and catfish does not differ significantly between samples; however, the representation of small sunfish is reduced, and minnows are absent in the screened sample (Table 50) (Figure 24).

The use of flotation more drastically alters the relative importance of certain mammalian species. Woodchuck, *Canis* sp. and deer are the highest ranking mammals in the screened sample, (Table 50) (Figure 25) a ranking similar to that of most other Middleport assemblages, whereas the float sample is dominated by small mammals.

Lastly, aside from Wiacek, the Middleport sites investigated herein contain few burnt or calcined bones (Burns and Heathcote 1974; Kapches 1981; Jamieson 1979; Wagner, Toomb and Reigert 1973). The lack of calcified faunal remains has been attributed to ritualistic taboos against offending spirits of dead animals and to method of food preparation. However, Wiacek in comparison with other Middleport sites has large quantities of calcined bone and, as Table 51 indicates, most calcined bone derives from flotation samples. In this table per cent (%) is an expression of the frequency of calcined elements compared to the total recovered by each technique. For example, the 16 calcined Osteichthyes specimens which were recovered by screening represent 0.3% of the total screened Osteichthyes sample. These data suggest that quantity of heat treated bone recovered may be simply a function of sampling strategy, calcined bone is very brittle and apt to disintegrate during rigorous dry screening.

Table 50. Wiacek Fauna Identified to Family or Lower: Screened Versus Floated Sample

Species	Screened		Species	Floated	
	f	%		f	%
yellow perch	118	36.1	yellow perch	452	37.0
sucker sp.	72	22.0	sucker sp.	308	25.2
catfish sp.	26	8.0	catfish sp.	134	11.0
woodchuck	15	4.6	minnow sp.	51	4.2
dog/wolf	12	3.7	e. chipmunk	40	3.3
walleye/sauger	9	2.8	cf. pumpkin seed	39	3.2
deer	8	2.5	red squirrel	37	3.0
grouse sp.	8	2.5	walleye/sauger	29	2.4
rabbit sp.	7	2.1	rabbit	20	1.6
cf. pumpkin seed	6	1.8	cf. largemouth bass	18	1.5
raccoon	6	1.8	grouse sp.	18	1.5
beaver	5	1.5	passenger pigeon	14	1.2
burbot	4	1.2	rock bass	8	0.7
cf. largemouth bass	4	1.2	burbot	8	0.7
rock bass	3	0.9	woodchuck	8	0.7
red fox	3	0.9	pike sp.	7	0.6
lake trout	2	0.6	lake trout	6	0.5
bowfin	2	0.6	mink sp.	6	0.5
red squirrel	2	0.6	muskrat	3	0.3
e. chipmunk	2	0.6	bowfin	2	0.2
fisher	2	0.6	beaver	2	0.2
passenger pigeon	2	0.6	dog/wolf	2	0.2
elliptio sp.	2	0.6	red fox	2	0.2
painted turtle	1	0.3	ellipitio sp.	2	0.2
blanding's turtle	1	0.3	raccoon	1	0.1
cf. black duck	1	0.3	marten	1	0.1
whitefish	1	0.3	turkey	1	0.1
marten	1	0.3	goose sp.	1	0.1
mink	1	0.3			
bear	1	0.3			
Total	327	99.9		1220	100.5

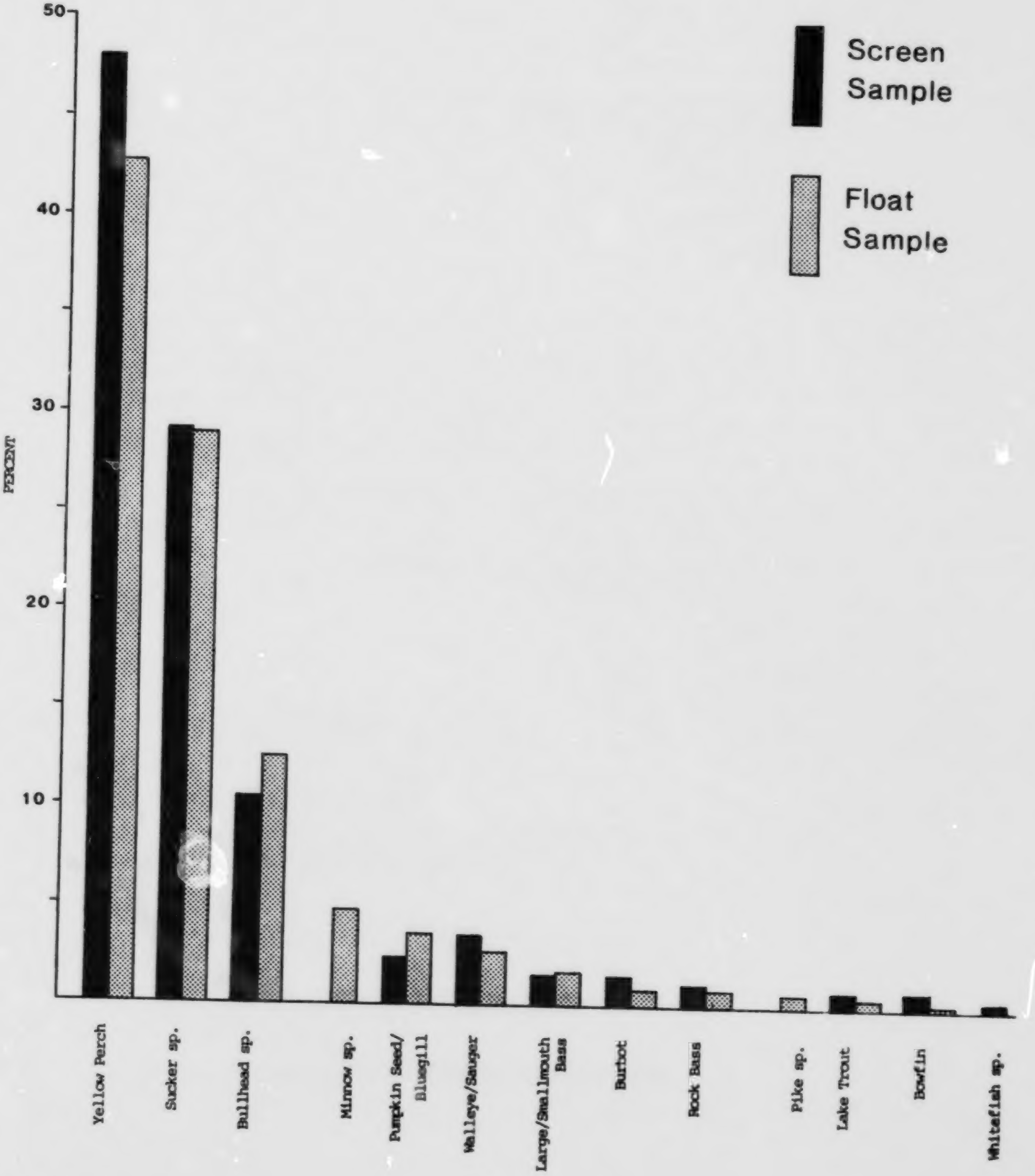

Figure 24. Identified Fish Remains; Screened Versus Floated Samples

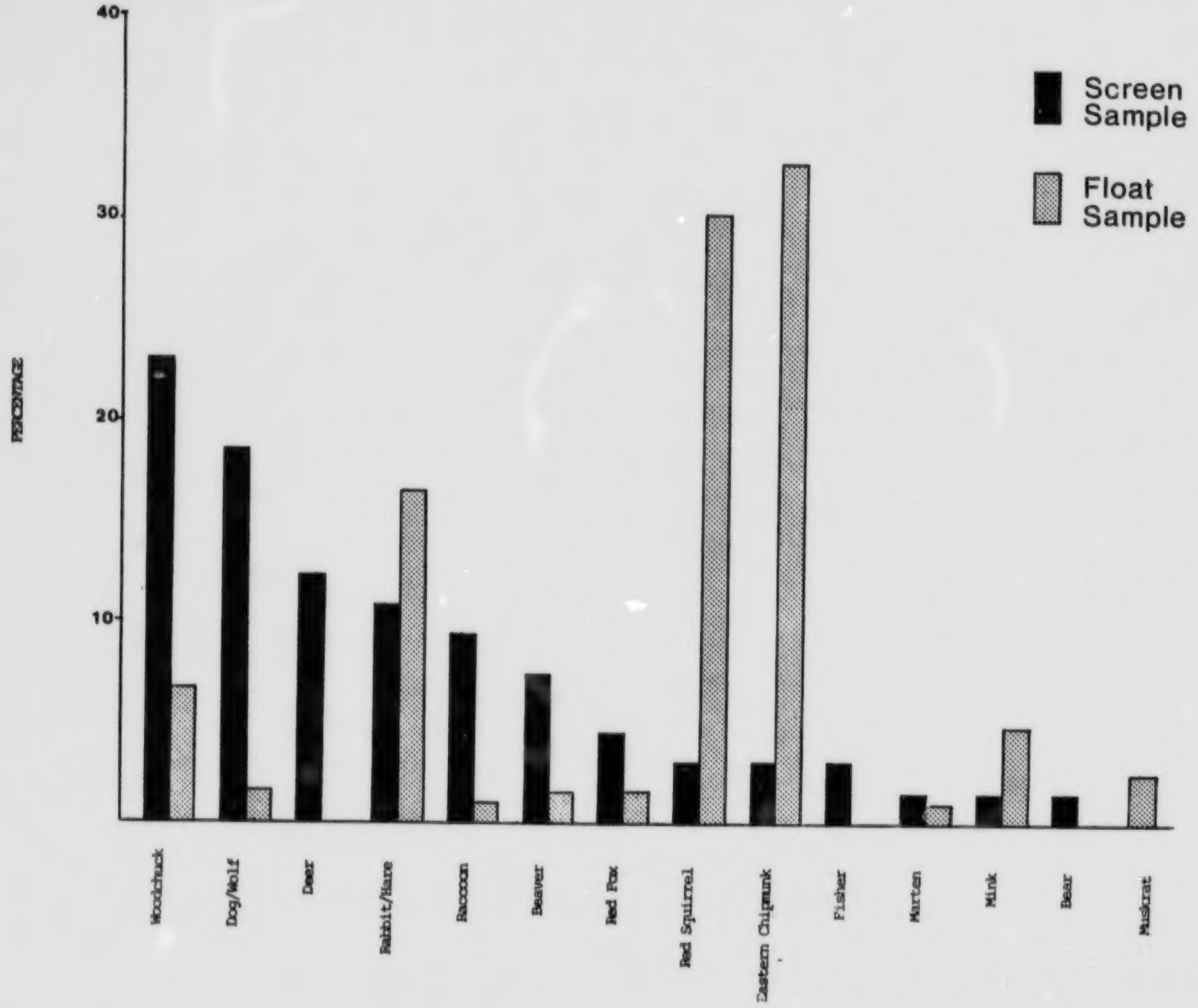

Figure 25. Identified Mammalian Remains: Screened vs. Floated Samples

Table 51. Calcined Bone at Wiacek:
Screened Versus Float Samples

Glass	Screened		Floated	
	f	%	f	%
Osteichthyes	16	0.3	2,543	19.8
Mammalia	84	43.5	1,382	76.5
Aves	5	20.5	123	64.1
Amphibia	0		16	12.4
Reptilia	1	33.3	10	83.8
Eucrustacea	0		1	100.0

In summary, collections containing faunal material recovered through trowelling or, at best, screening are, in all probability, biased in favour of non-calcined remains in general, and large mammals specifically. Therefore, when comparing faunal assemblages, it is critical to consider the method of sample acquisition and its effect on the derived sample.

Conclusions

Faunal remains recovered during excavation of the Wiacek site are extremely fragmented and calcined, rendering species identification difficult. Archaeofaunal evidence suggests that, at the time of site occupation Wiacek was situated in a mature forest environment, unfavourable to the support of a large or diversified land animal population.

Perch, sucker and bullhead compose the bulk of identified bone and, as the waters of Lover's Creek and tributaries were too cold, these were probably collected from the shoals of Kempenfelt Bay. The preponderance of identified fish species are spring spawners, however, some species are available year round and all could have been smoked and dried for winter consumption. The ratio of appendicular to cranial fragments (2:1) implies that a number of fish were processed at a fishing station.

The vast majority of Wiacek mammalian fragments belong to small or medium sized mammals. Mammals identified to species inhabit aquatic environments (i.e. beaver, muskrat, mink raccoon), mature forest (i.e. fisher, marten, bear) or are adaptable to diverse biotic zones (i.e. red squirrel, chipmunk). Deer bones are noticeably scarce. If large quantities of deer were hunted, they were killed at some distance from the site and only edible meat portions were transported back to the village. The general dearth of mammals and presence of aquatic and mature forest species suggests the Wiacek environs during time of occupation were not conducive to maintaining abundant wildlife.

Due to the small fraction of the archaeological deposit sampled, results of intra-site analysis are tentative; however, there appear to be certain differences in disposal patterns across the site. Midden E is composed of large bone fragments whereas the houses contain the greatest concentration and the most fragmentary bone. This suggests that, for the most part, only large bones were collected and redeposited in middens.

Lists of identified species from House 1 and 2 differ in their quantity and variety and in amount of calcined bone. This information suggests that House One was not occupied as long as House Two.

Faunal material in the longhouses is confined generally to the central corridor, particularly the zone bordered by rows of bunk and support posts. The large storage pits were not used for refuse disposal. Interhouse analysis produced no evidence to suggest restricted distribution of species that could be associated with familial units; identified species were dispersed throughout the longhouse. Therefore, either food was shared with other longhouse residents or innumerable taphonomic processes erased the evidence.

An investigation of flotation effects on faunal recovery re-inforce results obtained by other researchers: in screened samples, fish and small mammals are underrepresented and the relative importance of large mammals exaggerated. Therefore, proportional representation of species in Middleport faunal assemblages, recovered through screening only, are suspect. It is conceivable that use of flotation would not drastically affect relative importance of large mammals; however, it is likely that the overall pattern of faunal exploitation would be altered. Thus, to compare sites and devise strategies of faunal exploitation for the Middleport period, based on inadequate sample collection is inadvisable.

Use of floatation also increased quantity of calcined bone recovered. It has been inferred elsewhere that the recovery of small amounts of calcined bone may be due to religious taboos. It appears more plausible, however, to suggest that percentage of calcined bone recovered depends to a greater extent on technique of excavation and nature of osseous material than on ceremonial restrictions.

Chapter V

CHARRED PLANT REMAINS

Introduction

This chapter consists of the identification, analysis and interpretation of charred plant remains recovered during the 1983 salvage excavation of the Wiacek site. A total of 9,027 charred seeds and nuts were identified, and represent significant quantities of both wild and domestic plants. These plant species, combined with the identification of charred wood, provide data concerning prehistoric subsistence and the environment of central Innisfil Township, Simcoe County during the late fourteenth or early fifteenth centuries A.D.

The initial sections of this chapter present the identifications according to the general categories of charred wood, nuts, wild plants and cultigens. The final sections discuss the effectiveness of the sampling strategy and subsistence, seasonality and environmental reconstruction as indicated by the archaeobotanical remains.

Sample Recovery During site excavation, feature fill was screened through 6 mm mesh. Also, bulk soil samples were collected for processing by water flotation. These samples were collected to represent the various sizes, shapes, layers and potential of cultural features. A total of 107 flotation samples containing 2,037 litres of soil were gathered from 88 pit features and 8 large post moulds. The total volume of pit features is estimated at 13,636 litres; the flotation samples represent 14.5% of feature fill by volume.

The flotation samples were processed with a S.M.A.P. type flotation device (Watson 1976:77-100). The light fractions were collected with geological sieves (6.3 mm and .59 mm mesh). The heavy flotation fractions were recovered with a 2 mm mesh screen.

Method of Analysis The archaeobotanical remains from both fractions were passed through a series of three geological sieves to facilitate hand sorting. The light fractions were also examined with a binocular microscope at 8x to 40x magnification.

Identifiable remains were initially compared with reference materials of the Ministry of Citizenship and Culture, Archaeology and Heritage Planning Branch, London, Ontario. Final identifications were obtained or confirmed using the reference collection of the Botany Department, Royal Ontario Museum, with the most appreciated guidance of Dr. J. McAndrews and Mr. R. Fecteau. We also wish to thank Dr. Gary Crawford of the University of Toronto for identifying a problematic grass sample.

The complete inventory of archaeobotanical remains are listed by feature as an appendix to this report while Table 52 provides a summary of identifications (excluding wood) from various provenience areas. The category of stalk or stem fragments represents the small stems of grasses or other plants while plant fragments are the flat, often rectangular remains which may be corn stalks, roots, basket or matting fragments, strips of bark, etc.

Table 52. Summary of Charred Plant Remains From The Wiacek Site

Class Type	Provenience Out of House Features	House 1	House 2	Total f	%
Identified					
Cultigens	365	582	5338	6285	69.6
Wild Plants	517	848	1143	2508	27.8
Nuts	39	50	145	234	2.6
Total: f	921	1480	6626	9027	100.0
%	10.2	16.4	73.4		100.0
Unidentified					
Stalk/Stem Frags.	78	14	193	285	38.6
Plant Frags.	220	99	77	396	53.7
Seeds	17	11	29	57	7.7
Total: f	315	124	299	738	
%	42.7	16.8	40.5		100.0

Wood

A total of 2,569 grams of charred wood was recovered through dry screening and water flotation. Although all charred materials found in the on site screens was collected, 93% of the wood remains were recovered from flotation samples. The collection data for the overall sample and identified wood is provided according to general provenience in Table 53.

Table 53: Charred Wood Collection Data (weight in grams)

Provenience		Screened	Light	Heavy	Total Sample	Identified Sample
Out of House		8.0	953.7	146.7	1108.0	77.16
House 1		146.6	492.9	54.8	694.3	125.70
House 2		23.6	644.0	99.5	767.1	80.61
Total:	f	178.2	2090.6	301.0	2569.0	283.47
	%	6.9	81.3	11.7	99.9	11.00

Fifteen samples comprising 11% of the total charred wood collected were examined in detail and represent five features from each of the complete houses and another five from external features. The feature selections were determined by those containing the largest quantity of identifiable remains. The identifications are summarized in Table 54 and Figure 26. In Figure 26, the open bar signifies frequency of species occurence in the 15 features and the solid bar represents the percentage by weight of each species in the total sample.

The identified sample (Figure 26, Table 54) is clearly dominated by maple and beech which, when combined, account for 60% of the charred remains. Other deciduous species identified include elm, basswood, ash, ironwood and birch with a combined total of 12%. Conifer wood is also present with pine comprising 18.4% of the total sample. An unknown number of other gymnosperm species representing 9.1% are listed under unidentified conifer in Table 54.

The identification of charred wood from the Wiacek site suggests that the site was situated in a mature forest dominated by maple and beech. The other species also correspond to Rowe's "Huron-Ontario" subdivision of the "Great Lakes-St. Lawrence Forest Region" (1972:93). In addition to the archaeobotanical information, historical sources regarding the natural vegetation of the region provide descriptions of the forest cover surrounding the Wiacek site. Chapman and Putnam, for example, discuss the original forest of the Simcoe Uplands as

> "consisting of hardwoods, chiefly sugar maple and beech, together with white pine, yellow birch, basswood, and hemlock were also common .....Beech are more plentiful here than anywhere else in the province" (1966:308).

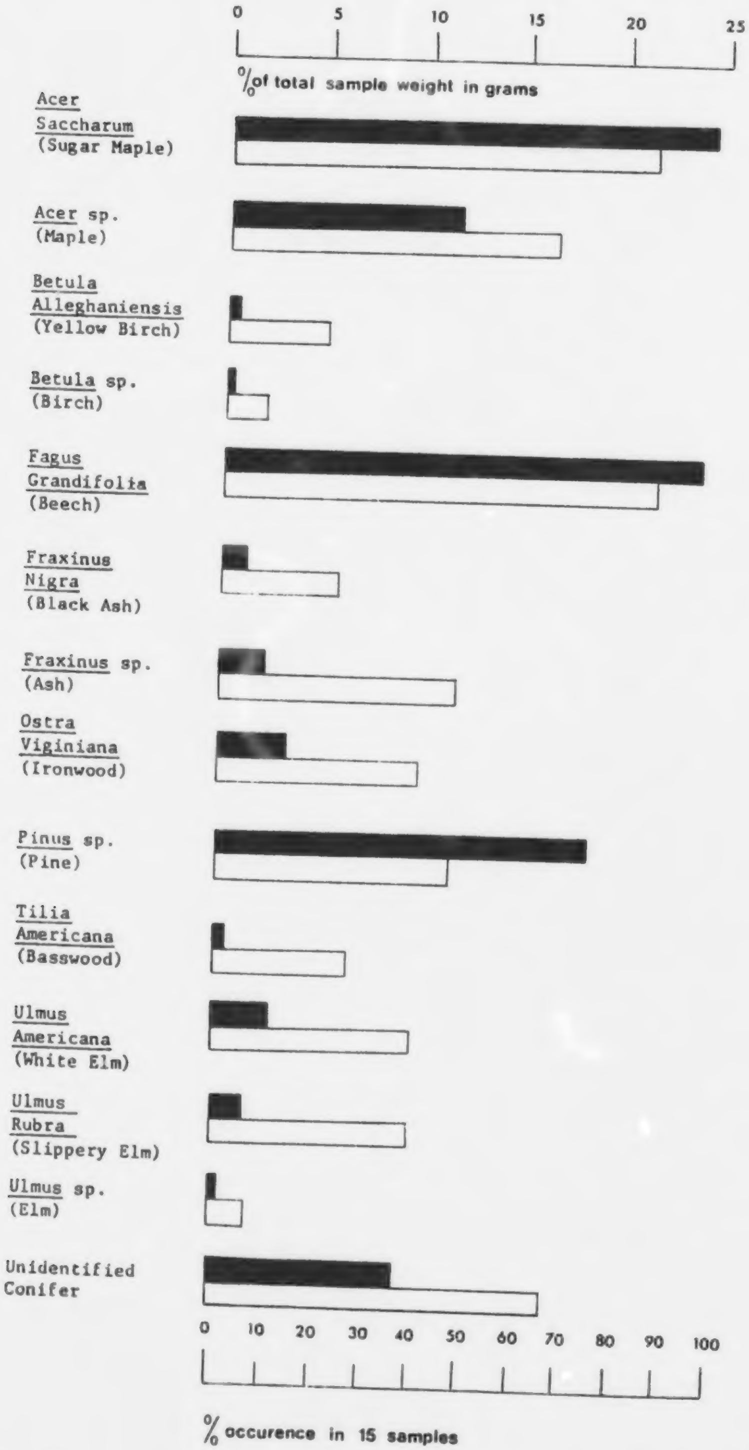

Figure 26. Charred Wood Identifications.

Table 54: Charred Wood Identifications from the Wiacek Site (gm)

Provenience	Acer Saccharum (Sugar Maple)	Acer sp. (Maple	Betula Alleghaniensis (Yellow Birch)	Betula sp. (Birch)	Fagus Grandi folia (Beech)	Fraxinus Nigra (Black (Ash)	Fraxinus sp. (Ash)	Ostra Virginiana (Ironwood)	Pinus sp. (Pine	Tilia Americana (Basswood)	Ulmus Americana (White Elm	Ulmus Rubra (Slippery Elm)	Ulmus sp. (Elm)	Unidentified Conifer	Unidentified Ring Porous	Unidentified Diffuse Porous	Total
F10	-	.18	-	-	2.90	-	-	-	6.95	-	-	-	-	18.92	-	-	28.95
F12	11.76	4.16	-	.26	5.34	.21	-	-	.06	-	1.31	.22	-	1.16	-	.94	25.42
F25	.82	-	-	-	4.21	-	1.08	-	-	-	.22	-	-	-	-	.98	7.31
F33	2.33	1.48	.58	-	3.46	.42	.31	.14	-	-	.27	.12	-	.94	-	.54	10.59
F60	.43	-	.32	-	.21	-	-	-	3.30	-	-	-	-	-	-	.63	4.89
H1F2	22.84	9.15	-	-	23.73	1.39	.43	.22	.30	.48	-	.99	-	.45	-	1.51	61.49
H1F8	.39	-	-	-	-	-	-	-	.97	-	-	-	-	1.54	.33	.5	3.73
H1F16	3.95	1.85	-	-	5.56	.05	-	.18	-	-	.26	.09	-	.17	.06	.54	12.71
H1F23	-	-	-	-	-	-	-	-	38.12	-	-	-	-	-	-	-	38.12
H1F36	4.43	-	-	-	2.68	.15	1.57	-	.31	-	-	-	-	.28	-	.23	9.65
H2F33	2.84	3.41	.13	-	2.31	.54	-	2.25	-	.18	-	-	-	-		.68	12.34
H2F45	.65	.77	-	-	4.97	-	-	-	-	-	-	-	-	-	-	.95	7.34
H2F69	3.05	2.19	-	-	.41	-	1.36	-	-	-	-	-	-	.08	-	-	7.09
H2F106	3.15	.61	-	-	1.98	.32	.38	2.54	-	.09	1.30	.67	-	.15	.09	-	11.28
H2F117	10.29	7.97	-	-	7.56	.26	1.25	3.75	-	.33	3.70	2.38	.63	1.02	-	3.42	42.56
Totals	66.93	31.77	1.03	.26	65.32	3.34	6.38	9.08	50.01	1.08	7.06	4.47	.63	24.71	.48	10.92	283.47g
%	24.6	11.70	.4	.1	24.0	1.2	2.3	3.3	18.4	.4	2.6	1.6	.2	9.1	*	*	99.9

* not included in % calculation

The description above closely reflects the charred wood identifications. More specific references are also available in the early nineteenth century land survey observations of the forest cover encountered along the original concession lines. Innisfil Township was initially surveyed in 1820 by Richard Birdsall, his records describe the township as forested by maple, beech, oak, pine, elm, basswood, black ash, hemlock, and birch (Finley 1978). The recorded vegetation in the immediate area of the site consisted of maple, beech, pine, basswood and elm, with adjacent lots composed primarily of maple, beech, oak and pine. Areas of cedar and tamarack swamp were also noted and one example located west of Wiacek could account for a percentage of the unidentified conifer in the sample.

Assuming that the Wiacek villagers exploited the closest sources of firewood first and gradually extended outwards from the settlement area as prime local supplies became exhausted (cf. Heidenreich 1971:215), a discrepancy exists between the nineteenth century historic records and archaeological data. Contrary to Birdsall's notes which indicate that oak was among the most common species in large sections of the immediate area, oak was not recovered from any of the archaeological features examined. This discrepancy between the archaeobotanical evidence and more detailed historic accounts is investigated further in the environmental reconstruction section of this chapter.

Nuts

The charred remains of 217 nut shell fragments and 16 meat portions were recovered from 35 pit features and three post moulds. Identified nut species include butternut (_Juglans cinera_), acorn (_Quercus_ sp.), and hickory (_Carya_ sp.).

Table 55. Charred Nut Remains (f)

Type	Provenience			Total	
	Out of House Features	House 1	House 2	f	%
Butternut *(27)	28	40	106	174	74.3
Acorn (7)	3	1	32	36	15.3
Hickory (4)	1	1	6	8	3.4
Unidentified (5)	7	8	1	16	6.8
Total: F (38)	39	50	145	234	99.8
%	16.6	21.3	61.9	99.8	

* Number of features where type occurs

Butternut is the most abundant of the nut remains identified from the Wiacek site. The 163 shell fragments and 11 meat portions from 25 features and two post moulds account for 74.3% of the total nut sample (Table 55). While these fragments weigh only 11.6 grams, the broad distribution and quantity of specimens suggest that butternut was the most extensively exploited species.

Acorn (0.9 g) was recovered from six features and one post mould. The remains consist of 33 shell fragments and three one-half cotlydon meat portions representing 15.4% of the nut sample.

Hickory (0.2 g) consists of eight shell fragments from four features. The shells recovered are thin in comparison to most Carya species and considering the geographic location, bitternut (Carya cordiformis) is the likely parent species.

Unidentified nut remains account for 6.8% of the sample and consist of 14 shell fragments and two meat portions.

The parent trees of all nut species were not found in the charred wood assemblage. This suggests they were uncommon near the site or were not utilized for fuel. Bitternut hickory reaches its northern extent near Lake Simcoe (Hosie 1979:148) and would be expected only in small numbers. The larger quantity of the readily edible butternut probably reflects a cultural preference rather than availability as butternut has a low density throughout its range, while several species of oak are native to the region (Hosie 1979; Fowells 1965).

Wild Seeds

A total of 2,565 charred wild seeds were recovered entirely from the flotation samples. At least sixteen genera are represented, including two species of unidentified grass seeds and thirteen unknown charred seeds (Table 56 and 57).

The wild plant remains are quantified in two separate categories to display a more realistic pattern of the frequencies available in the environment and to reflect the probable effort expended to procure them. The first category includes the herbaceous plants and smaller shrubs, such as grasses and berries. These were presumably available in large quantities close to the site and have a greater potential of becoming incidentally charred. The second category of wild species includes the larger shrubs and trees. The natural productivity of large shrubs and trees is generally less than smaller plants and the possibility of charring and subsequent deposition without human intervention would be relatively remote for the majority of these species. Table 57 provides the general provenience data for herbaceous plants and small shrubs. Habitat, seaonality and known uses for both categories of wild plants are listed in Table 58.

All but one of the wild plant species listed in Table 56 are commonly found along the forest edge, in open areas, or on disturbed ground. Bellwort, the exception, is found in moist woods (Peterson 1977:76). Bellwort seeds would appear to be an unusual identification as the young shoot (spring growth) is considered the edible portion of the plant (Peterson 1977:76). According to Yarnell (1964:77), an unknown element of bellwort was included within a hunting charm and may represent a rare, ritual or magical plant identification.

The 214 grass seeds recovered could be separated into three types on the basis of form and size. Two types consisted of friable, poorly preserved specimens and could only be identified as *Graminideae*. The third group consisted of 186 well preserved seeds. A sample of these were identified by Dr. Gary Crawford as *Agropyron/Elymus*. The charred remains of the genera are very similar although the majority of the Wiacek specimens appear to be the smaller *Agropyron* (Crawford Pers. Comm. 1985).

Two species of *Agropyron* are native to the study area. *A. psammophilum* (Great Lakes wheatgrass) has a modern range limited to the shores of Lake Huron and Michigan (Dore and McNeill 1980:185). *A. trachycaulum* (wheatgrass) is found distributed across Ontario and is the probably *Agropyron* species represented in the Wiacek sample.

Several species of *Elymus* are present in the Lake Simcoe region. The two types of wild-rye (*E. canadensis* and *E. virginicus*) prefer somewhat specialized environments. The Canadian wild-rye is found along dry sandy shores of the Great Lakes while Virginia wild-rye is a wet, open woods inhabitant (Dore and McNeill 1980:201-206). *E. lystrix* (bottlebrush grass) has been identified in the area of Kempenfelt Bay and is known to grow vigorously on disturbed or cleared soil (Dore and McNeill 1980:109, 211). This last species is amply adapted to colonized Iroquoian settlements and may have been abundant on many sites.

Dr. Crawford has recovered examples of *Agropyron/Elymus* from Late Woodland sites in Ontario, and also Japan, and Wisconsin (Crawford Pers. Comm. 1985). To date, possible uses of these genera are not specified

Table 56. Charred Seeds of Herbaceous Plants and Small Shrubs

Type	Provenience				
	Out of House Features	House 1	House 2	Total f	Total %
Rubus sp. *(36) (Raspberry/Blackberry)	206	370	128	704	29.2
Rhus typhina (49) (Staghorn Sumac	14	37	651	702	29.2
Sambucus sp. (32) (Elderberry)	228	152	77	457	19.0
Aralia racemosa (9) (Spikenard)	27	244	8	279	11.6
Gramineae sp. (8) (Grass)	9	9	10	28	1.2
Agropyron/Elymus (Wheatgrass/Wild-rye)	-	-	186	186	7.7
Uvularia grandifloria (3) (Bellwort)	9	23	-	32	1.3
Fragaria sp. (3) (Strawberry)	-	-	19	19	.8
Total f (67)	493	835	1079	2407	100.0
%	20.5	34.6	44.8		99.9

* Number of pit features and posts where type occurs

in standard sources. The recovery of 152 charred Agropyron/Elymus seeds from H2F33 in association with 116 smooth, slender stem fragments suggests that the entire stalk was utilized. Perhaps the remains represent a grass lining within the pit.

As with the majority of smaller plants, species listed in Table 57 are not commonly found within the canopy of a mature forest. Hackberry may be the single exception and reaches the largest size of the species identified. The distribution of this tree would likely have been limited, considering that the present northern extent of the hackberry is near the southern perifery of Lake Simcoe (Hosie 1979:206).

Table 57. Charred Seeds of Large Shrubs and Trees

Type		Provenience				
		Out of House Features	House 1	House 2	Total f	Total %
Cratagus sp. *(24) (Hawthorn)		20	7	45	72	71.3
Prunus pennsylvanicus (10) (Pin Cherry)		3	2	11	16	15.8
Prunus virginiana (3) (Choke Cherry)		1	1	1	3	3.0
Prunus americana (1) (Wild Plumb)		-	-	2	2	2.0
Cornus alternifolia (3) (Alternate leaved Dogwood)		-	1	4	5	5.0
Zanthoxium americanum (1) (Prickly Ash)		-	2	-	2	2.0
Celtis occidentalis (1) (Hackberry)		-	-	1	1	1.0
Total	f (31)	24	13	64	101	100.1
	%	23.7	12.8	63.3		99.8

* Number of pit features and posts where type occurs

TABLE 58: SUMMARY OF ETHNOGRAPHIC AND HISTORIC DATA FOR IDENTIFIED WILD PLANTS

Common Name	Latin Name	Family	Uses	Habitat	Seasonality
Staghorn Sumac	Rhus typhina	Anacardiaceae	Food, Medicine Smoking, Technology	Forest Edge Clearings, Open Ground	June-September (Fruit)
Spikenard	Aralia racemosa	Araceae	Food, Medicine	Rich Woods	Year Round (Roots)
Elderberry	Sambucus pubens	Caprifoliaceae	Food, Medicine	Forest Edge Stream Banks, Thickets	August-October (Fruit)
Alternate Leaved Dogwood	Cornus alterniflora	Cornaceae	Medicine Smoking	Open Woods, Stream Banks, Swamp Edge	August-October (Fruit)
Bellwort	Uvularia grandiflora	Liliaceae	Food, Medicine Charms	Moist Woods	Early Spring (Shoot)
Hawthorn	Crataegus sp.	Rosaceae	Food, Medicine, Charms, Technology	Forest Edge, Open Woods, Thickets	September-October (Fruit)
Strawberrry	Fragaria sp.	Rosaceae	Food, Medicine	Forest Edge Open Woods, Thickets	April-June (Fruit)
Wild Plum	Prunus nigra	Rosaceae	Food, Medicine Technology	Forest Edge, Stream Banks, Open Woods, Thickets	August-September (Fruit)
Pin Cherry	Prunus pensylvanicus	Rosaceae	Food, Medicine	Forest Edge Open Woods, Thickets	August-September (Fruit)
Choke Cherry	Prunus viginiana	Rosaceae	Food, Medicine	Forest Edge Open Wood, Thickets	August-September (Fruit)
Raspberry/ Blackberry	Rubus sp.	Rosaceae	Food, Medicine	Forest Edge Clearings, Thickets	July-August (Fruit)
Prickly Ash	Zanthoxylum americanum	Rutaceae	Medicine	Forest Edge Open Woods, Thickets	All Year (Bark)
Hackberry	Celtis occidentalis	Ulmaceae	Food	Rich Woods	October-November (Fruit)

(From Yarnel 1970, Erickson - Brown 1979, Peterson 1977, Hosie 1975)

Cultigens

Charred remains of cultivated plants comprise the largest category of archaeobotanical identifications from the Wiacek site. The remains include corn (Zea mays), bean (Phaseolus vulgaris), sunflower (Helianthus sp.), squash (Curcubita sp.), and tobacco (Nicotana rustica). Table 59 provides the identifications for each cultigen according to house and external activity area.

Table 59. Charred Cultigens from the Wiacek Site

Type	Provenience			Total	
	Out of House	House 1	House 2	f	%
Corn *(93)	354	565	4987	5906	94.0
Bean (6)	2	-	9	11	.2
Sunflower (7)	1	-	8	9	.1
Squash (3)	1	-	2	3	-
Tobacco (22)	7	17	332	356	5.7
Total f (93)	365	582	5338	6285	100.0
%	5.8	9.2	85.0		100.0

* Number of pit features and posts where type occurs.

Corn remains were recovered from 83 pit features and 10 post moulds and represent the most widely distributed plant species from the site. Table 60 illustrates the element breakdown of the maize remains by house and outside activity area. Here the category of cob fragment indicates a number of articulated cupules in the direction of cob length.

Table 60. Charred Corn Remains By Provenience Areas

Element	Provenience					
	Out of House	House 1	House 2	Total f	Total %	Weight (g)
Kernel	6	22	308	336	5.7	23.5
Kernel Fragment	215	360	3862	4437	75.1	108.7
Embryo	4	23	51	78	1.3	1.6
Cob fragment	-	-	15	15	.2	.6
Cupule	129	160	745	1034	17.5	9.8
Cob Peduncle	-	-	6	6	.1	5.2
Total f	354	565	4987	5906		149.5
Total %	6.0	9.5	84.4		99.9	

Due to the total absence of complete or measurable cobs, determination of the maize variety must be based on kernel and cupule size and shape. Fifty complete kernels were randomly selected and measured to determine if significant variations in kernel size indicated that several varieties were utilized at the site. Sykes (1981:30) analyzed a number of cobs from northern Iroquoian sites and determined that kernels from twelve-rowed cobs display an almost equal thickness to width ratio while the eight rowed Northern Flint kernels reflect an approximate ratio of 2:1. The Wiacek kernels exhibit an uncorrected average width to thickness ratio of 9.3:5.6 mm, with a range of 7.1 to 12.3 mm wide and 4.8 to 7.2 mm thick. The ratio of all measured kernels is greater than 3:2 and combined with the cresentic shape of the kernels and cupules, the Wiacek corn compares to the eight-rowed Northern Flint variety.

The charred remains of eleven beans were recovered from six pit features and consist of two complete examples and nine half cotlydons. The unaltered metrics for nine measurable beans range from 6.1 to 13.0 mm in length with a mean length of 9.0 mm, and from 3.9 to

6.1 mm wide with a mean width of 4.8 mm. The complete beans measure 3.0 and 4.1 mm thick with a mean of 3.5 mm. As indicated, the beans are quite variable in size and this is to be expected when Waugh (1916: 104) reports that he collected over sixty varieties cultivated by the historic Iroquois. The distinctions between historic bean varieties are seen in such characteristics as size, form and colour which, due to charring and subsequent distortion, are not readily recognizable attributes of the prehistoric examples.

Charred sunflower remains consist of nine seeds recovered from seven pit features. The five measurable examples do not include the thin seed cover or pericarp which adds approximately 1 mm to each dimension. These seeds range from 6.3 to 9.6 mm long with a mean of 7.2 mm, and from 1.9 mm to 3.8 mm wide with a mean of 2.9 mm.

Yarnell (1978:289-299) has quantified sunflower remains from the Northeastern United States and has documented an increase in seed size from its initial domestication ca. 1500 B.C. to late prehistoric and modern wild examples. To correlate the Wiacek sunflower seeds with Yarnell's data the charred metrics must be increased 11% in length and 27% in width to account for shrinkage when compared with non-charred seeds (Yarnell 1978:296). The corrected metrics of the Wiacek specimens provide a mean length times width of 29.6 mm. This is smaller than expected and would place this assemblage within the late Archaic to early Woodland range of Yarnell's study (1978:292). While the date of the Wiacek site corresponds with the Mississippian period to the south, the relatively small seeds indicate a less developed variety of sunflower or perhaps a shorter growing season in the Lake Simcoe area.

The remainder of the domesticated plants consist of three fragmentary squash seeds recovered from three pit features and 356 tobacco seeds from 19 pit features and three post moulds. A total of 315, 88.4% of all tobacco seeds, were recovered from H2F117. Lastly, the contents of all pipe bowls recovered were examined under magnification and failed to reveal any charred material.

Results of Sampling Strategy

Wiacek was technically a salvage project, and therefore, it was not possible or desirable to subject the majority of feature fill to water flotation. The sampling strategy implemented was intended to recover a large and varied archaeobotanical assemblage within the constraints of a substantial area to investigate and limited time allowance.

Throughout the excavations, approximately one out of three features were sampled for flotation. By following this method an attempt was made to equally represent the different site areas prior to any realization of the community pattern. While this strategy was somewhat biased towards those features that contained quantities of charred remains, floats were also taken from features which appeared to be sterile.

The advantages and importance of adequate flotation samples has been discussed elsewhere (Streuver 1968, Fox 1981) and the expected discrepancy between quantities of charred remains recovered by 6 mm dry screening and water flotation is readily evident. Only two plant taxa were recovered with the on site screens. These consist of 2.4% of the charred corn and 4.6% of the butternut remains. It is also significant that only three pit features not sampled by flotation produced charred seed or nut remains. The frequencies of pit features, floated pit features, fill quantities and identified remains are provided by provenience group in Table 61.

Table 61. Flotation Sample and Feature Data By Provenience Group

Sample Data		Provenience			
		Out of House	House 1	House 2	Total
Total No. of Features Excavated		66	82	137	285
No. of Features Sampled for Flotation	f	17	27	44	88
	%	25.7	32.9	32.1	30.8
Estimated Total Feature Volume* (Litres)		3493	4968.3	5513.4	13974.7
Flotation Sample Volume (Litres)	f	494	506	1011	2011
	%	14.1	10.2	18.3	14.4
Identified Remains**	f	920	1388	6448	8756
	%	10.5	15.8	73.6	99.9

* floated features only

** excluding screened and post mould data

Throughout the identifications it is evident that House 2 contained the majority of charred plant remains: five times the number of remains were identified compared to House 1 or the external features. This is the result of a number of factors. First, House 2 was more intensively occupied as reflected in the higher density of pit and post features. Fifty percent of the total features sampled and twice the volume of soil floated was contributed from House 2. Secondly, a single large refuse filled pit, F117, contained 60.3% of the archaeobotanical remains from House 2 and 44% for the site in general. Excluding this feature, the sample from House 2 represents 30% of the total identified remains and is then in proportion with the volume of flotation and the number of features sampled.

The absence of any charred seed species from a general provenience area appears to be more the result of an overall scarcity of seeds, rather than a bias resulting from the sampling strategy. For example, only two identified species were not recovered from House 2, prickly ash and bellwort, both of which had limited distribution on the site. Four wild species, which were also limited identifications, were not recovered from out-of-house pits. House 1 lacked a total of eight species, including the cultigens bean, sunflower and squash. It is unlikely that this absence is simply the result of flotation volume as the external features contained examples of these taxa. Generally, these cultigens, absent from House 1 are not common on any prehistoric Iroquoian site. This may be interpreted as the result of differing prehistoric processing or storage techniques where instances of intact charring under oxygen reduced conditions rarely occur. Another variable to be considered in accessing the Wiaçek site data is its temporal period. Perhaps only limited quantities of the poorly represented domesticates were under cultivation at this time.

In summary, the sampling strategy implemented at the Wiacek site involved the flotation of approximately 500 litres or more from each general area of the site. It is apparent that intensively exploited species with remains represented by charred seeds, such as corn and bramble berries, were deposited in large numbers throughout the site. It must be emphasized that the discovery of species with a minimal frequency of occurrence was accomplished only through the flotation of a large number of pit features. While the latter species may be seldomly preserved or of limited availability, the combined archaeobotanical data provides a substantial base when discussing the subsistence, seasonality and environment during the occupation of the Wiacek site and for the region in general.

Subsistence and Seasonality

The archaeobotanical identifications testify that the Wiacek inhabitants utilized a wide variety of wild plant foods and cultivated each of the known historic Iroquoian domesticates. With few exceptions the wild remains reflect species which are commonly recovered from prehistoric contexts in Southern Ontario. Several examples of edible species available in the Lake Simcoe area and not recovered at Wiacek include; beech nut (Fagus grandifolia), wild grape (Vitis sp.), gooseberry (Ribes cynosbata), and perhaps the blueberry (Vaccinium sp.).

A number of non-charred seeds were deposited by recent seed rain and recovered from the flotation samples. The identified intrusive species are lamb's quarters (Chenopodium sp.), wood sorrel (Oxalis stricta), crab grass (Digitaria sp.), and the common purslane (Portulaca oleracea).

The extent that horticulture dominated Iroquoian subsistence during the Late Woodland is readily evident by the population growth, expansion of territory and increase in the number and forms of settlement by the late Middleport stage (Wright 1966; Kapches 1981). Examples of each domesticated species have been recovered from early Iroquoian or contemporaneous Younge Tradition occupations in Ontario (Noble and Kenyon 1972; Stothers 1973; Blake 1978; Lennox 1982; Cooper 1982; Fox 1984), and the presence of all cultigens at Wiacek is as expected for a late Middleport component. Indeed, the absence of the domesticates on contemporaneous occupations must be viewed cautiously in light of adequate sampling techniques.

The seasonality data of the identified wild plant species provided in Table 59, combined with the cultigen and nut remains represent plants gathered or harvested throughout the growing season. This establishes that the site was not occupied for the purpose of exploiting a specific few, seasonally available resources. The numbers of charred seeds recovered in the external pit features are probable evidence of warm period food preparation and consumption. The large frequency of internal house features and associated remains are most suggestive of habitation during colder months. While all persons would not be present within the village locality at all times of the year, the site represents the formal base of an Iroquoian community.

In each respect, the Wiacek site correlates with the semi-permanent form of settlement strategy and represents a population intensively concerned with food production. Corn appears to be the primary horticultural product, although differing forms of preparation or refuse disposal could favour the survival of maize remains and exaggerate its importance over other cultivated species. The wild plants, including nuts, were certainly important for the variety, nutritional and medicinal value they provided, but outside of their prime seasons, would have represented only a minor component of daily caloric intake. For example, the wide distribution and limited quantities of butternut suggest that it was consumed in the manner of a condiment or supplemented the cultivated foods. Waugh (1916) noted that historic Iroquois added nut meat to soups and breads, consumed it as a snack or rendered it for oil. Given that complete charred butternut shells weigh approximately eight grams, the total of 11.6 grams from the site indicates that for most of the year, butternut was only a supplementary food source.

From a regional perspective, the relative importance of bean, sunflower, and squash may have varied largely throughout Southern Ontario during late Middleport times. It remains to be established if the above species were introduced to the Wiacek area as a single complex, or whether different forces affecting the acclimatization or productivity of each species necessitated gradual, independent northward diffusion. The latter interpretation appears more probable considering the sporadic reporting of bean, sunflower and squash from earlier contexts in Ontario. The small size of the sunflower achenes from Wiacek does suggest a less developed or poorly adapted variety compared to examples cultivated by contemporaneous peoples in more southern parts of the Great Lakes. This may be an indication that sunflower was recently introduced to the Lake Simcoe area or was experiencing a long acclimatization to a shortened growing season.

A similar conclusion has been suggested by Crawford (1984), in his analysis of sunflower from the Seed site. This mid-sixteenth century site produced the largest sample of sunflower seeds reported for a late Woodland site in Ontario. Seed is located 40 kilometers south of Wiacek on the East Humber River, near Kleinburg, Ontario. The measurable 393 sunflower seeds display a mean length times width of 31.6 which is approximately 3% larger than the Wiacek seeds. These later seeds remain small in comparison to Mississippian specimens ranging from 41.0 - 82.0 (Yarnell 1978:293). Crawford suggests that Ontario sunflower "may be a small, early maturing variety adapted to a growing season near the northern limit of its husbandry" (1984:12).

While the relative date of introduction for each domesticated species remains a matter for future research, the presence of each cultigen at Wiacek and the apparent established dependance upon horticulture is representative of the subsistence base recorded for the historic Iroquois. Further horticultural advances following the late Middleport Wiacek occupation appear to have involved greater success in acclimatization, more varieties introduced or hybridized, and possibly larger quantities cultivated and incorporated into the subsistence strategy.

Environmental Reconstruction

The archaeobotanical remains from the Wiacek site provide several important indications of the past environment of central Innisfil Township. Deriving an understanding of how the landscape appeared several centuries past is hindered when the archaeological evidence is based on a single site, the entire region was extensively lumbered prior to detailed or completely reliable vegetation records and lastly, the township today is mostly under cultivation with ongoing, selective cutting of woodlots.

Overall, the implications of the identified charred wood, wild plants and cultigens recovered from the Wiacek site compared with the original land survey records represent distinct and even conflicting arboreal reconstructions. The charred wood identifications are consistent with the form of maple-beech hardwood forest that once covered much of south-central Ontario. The abundance of wild plant species identified suggests a more open or disturbed environment. Finally, a different pattern is again presented by the nineteenth century surveys which state that much of the Wiacek area was forested by four dominate species consisting of maple, beech, oak and pine.

The following discussion will explore the various implications of the data sources, although a more detailed or perhaps complete understanding of the prehistoric landscape must await further archaeobotanical or palynological investigation to confirm, expand or revise the preliminary results of this report.

Modern forest designations for the western Lake Simcoe area indicate that much of the general forest pattern consisted of the northern maple-beech hardwood type (Fowells 1965:67; Finley 1978; Chapman and Putnam 1966:308; Rowe 1963:93). This implies a mature, stable forest composed mainly of large sugar maple (Acer saccharum) and beech (Fagus grandifolia) trees with occasional or concentrated examples of other species. This forest type dominates large tracts of moist, fertile and well drained soils of all types throughout northeastern North America (Fowells 1965:67).

Locally, the area south of Kempenfelt Bay is described as a broad upland with a "surface smoothed by shallow sand and gravel deposits" (Chapman and Putnam 1966:307-308). The predominate soil series of Innisfil Township are the Bondhead soils, which are brown and grey brown podzols, moderate to very stoney, well drained, slightly to medium acid and calcareous to non-calcareous, sandy loam tills. Other soils of the township include Vasey, Dundonald, Alliston, and finally the Tioga series on which the site is located. Tioga soils are grey, calcareous, outwash sands with good drainage, medium acidity, stone free to moderately stoney podzols. The other soils are similar to the two described, although Alliston soils may be imperfectly drained (Experimental Farm Branch 1962).

Generally, the soils of Innisfil Township are sands, loamy sands and sandy loams, which tend to be stoney or gravelly and well drained. The local topography consists of some heights which may be excessively drained with well-watered slopes and plains. Springs provide the headwaters for small drainages and maintain wooded, lowland swamps.

The topography and soils of central Innisil Township reflect the texture, moisture content and acidity necessary to sustain a northern sugar maple-beech forest (Fowells 1965:67). In areas where soils are most dry, beech may have dominated sugar maple (Chapman and Putnam 1966:308). The common associates of this forest type include red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), basswood (*Tilia americana*), and black cherry (*Prunus serotina*) (Hosie 1979:274; Fowells 1965:67). Ideally, limited frequencies of other common Great Lakes-St. Lawrence species (Rowe 1963: 93), such as eastern hemlock (*Tsuga canadensis*), white pine (*Pinus strobus*), oaks (*Quercus* sp.), ashes (*Fraxinus* sp.), and elms (*Ulmus* sp.) would be found scattered throughout the forest. Favourable habitats such as marshes, floodplains or stream banks would support concentrations of tamarack (*Larix laricina*), eastern white cedar (*Thuja occidentalis*), black ash (*Fraxinus nigra*), white elm (*Ulmus americana*), and a variety of smaller trees and shrubs.

This description of the ideal arboreal environment emphasizes the inconsistencies between the archaeological sample from the Wiacek site and the early vegetation records for the surrounding area. The identified charred wood conforms closely with a mature maple-beech forest, while the early land survey includes oak and pine among common associates in the central township area (Figure 27). Oak was not recovered from the identified wood sample and although pine was the third most abundant taxa by weight, the frequency of occurrence in the overall sample was similar to other secondary species.

Assuming that the survey notes are reasonably accurate, albeit a general account of the forest pattern, the presence of oak and pine in such noticeable numbers requires explanation when these species are not common associates of the maple-beech forest type. Their differing tolerance to competition, moisture requirements and growth cycles necessitate distinct or highly variable environments.

The dominance of maple and beech on the well drained soils is due to their ability to survive competition during the early growth stages and often persist, although stunted, until a break in the forest canopy develops. Their height and large crowns then eventually overshadow most other trees during a three to four hundred year life-span (Hosie 1979:266; Fowells 1965:175). Pine, and to a somewhat lesser extent oak, require sufficient, direct sunlight to survive the seedling stage (Fowells 1965: 332, 591, 633). In addition, "against the stronger competition of such species as the aspens, oaks, and maples, white pine usually fails to gain a place in the upper canopy and will eventually die" (Fowells 1965:333).

Since oak and pine require sufficient light and little competition, their presence in the Wiacek area as other than dispersed examples indicates that suitable habitat was available to produce the quantities observed in the nineteenth century. It is essential that breaks occur and remain in the canopy for species intolerant to competition. Therefore, some form of forest alteration took place which is evident in the early survey records, but seemingly not in the charred wood from the Wiacek site.

Examples of agencies which alter the composition of mature forests would include natural fires, widespread wind or ice damage and human activity. The former examples could account for some forest disruption, although the extent of damage caused by storms or natural fires in a primarily deciduous forest is of questionable significance. The final suggestion of human activity would seem an important factor in Innisfil Township when a large number of known Iroquoian sites dating from Middleport to protohistoric times correspond closely with the historic distribution of oak and pine as illustrated in Figure 27.

Heidenreich (1971:54-56) discusses the observations of French explorers and missionaries of the early seventeenth century who described the landscape of Huronia as comparable to regions of France. At that time, large areas of what was called grassland could be found, but by the early nineteenth century all Huron settlements had reverted to a closed forest (Heidenreich 1971:188). These grasslands were the result of

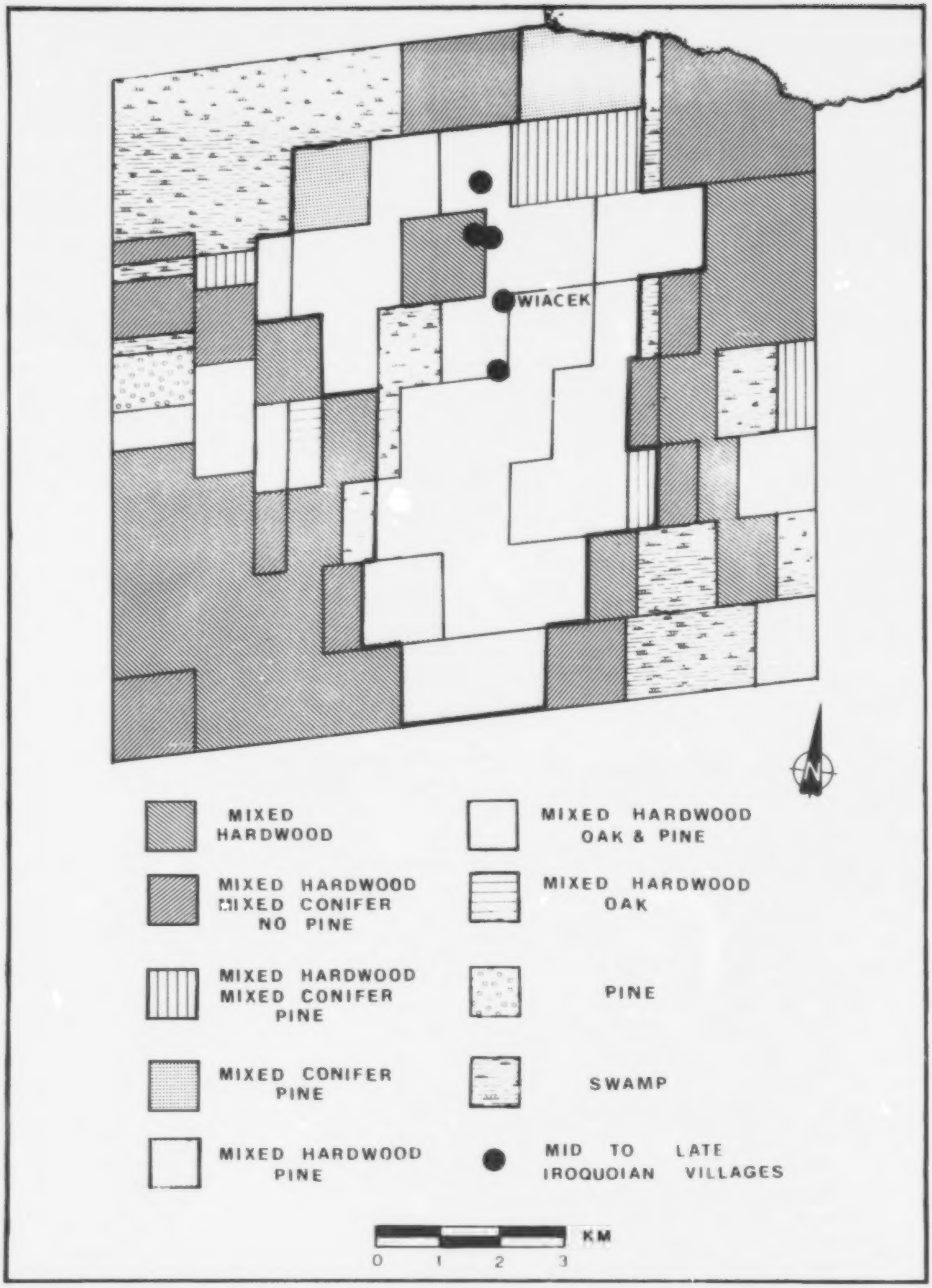
WIACEK
N
MIXED HARDWOOD
MIXED HARDWOOD MIXED CONIFER NO PINE
MIXED HARDWOOD MIXED CONIFER PINE
MIXED CONIFER PINE
MIXED HARDWOOD PINE
MIXED HARDWOOD OAK & PINE
MIXED HARDWOOD OAK
PINE
SWAMP
MID TO LATE IROQUOIAN VILLAGES
KM
0
1
2
3

Figure 27. Early 19th Century Vegetation and Late Woodland Site Locations

semi-permanent occupations and the practice of shifting horticulture. This form of environmental alteration would occur, with varying magnitude, in situations where communities continually relocate within a confined territory.

With the knowledge that a large number of Iroquoian settlements were located in Innisfil Township and that their establishment would have considerably altered the extent and composition of the original forest, the discrepancy between the charred wood identifications and historic records is readily accounted for as prehistoric alteration of the arboreal environment. Much of the maple, beech, oak and pine of the nineteenth century resulted from the gradual displacement of the prehistoric successional vegetation to historic stands increasingly more typical of a mature, maple-beech hardwood forest. This interpretation is supported by results elsewhere, such as the Crawford Lake palynological investigations (McAndrews 1976), the Crawford Lake site (Finlayson and Bryne 1975), and also the Draper site (Bowman 1979).

McAndrews provides an explanation for the increase in oak and pine following the abandonment of prehistoric settlements when he states:

> "Maple and beech form a slow growing
> stable forest community in contrast
> to oak, particularly Quercus rubra,
> and white pine that are fast growing
> trees which pioneer succession in forest
> clearings" (1976:2)

Another aspect in the succession of oak and pine following prehistoric land impact is the lessened competition from other tree species, due to the lasting effects of increased evaporation, rapid run-off and loss of fertility from prolonged horticulture or eluvial action. Their preference for dryer, often less fertile soils is illustrated by a study of Southwestern Ontario Carolinian forest, where Maycock (1963) determined the optimum range of soil moisture for each tree species. Below in Figure 28, the favoured range of soil moisture categories for seven species is presented.

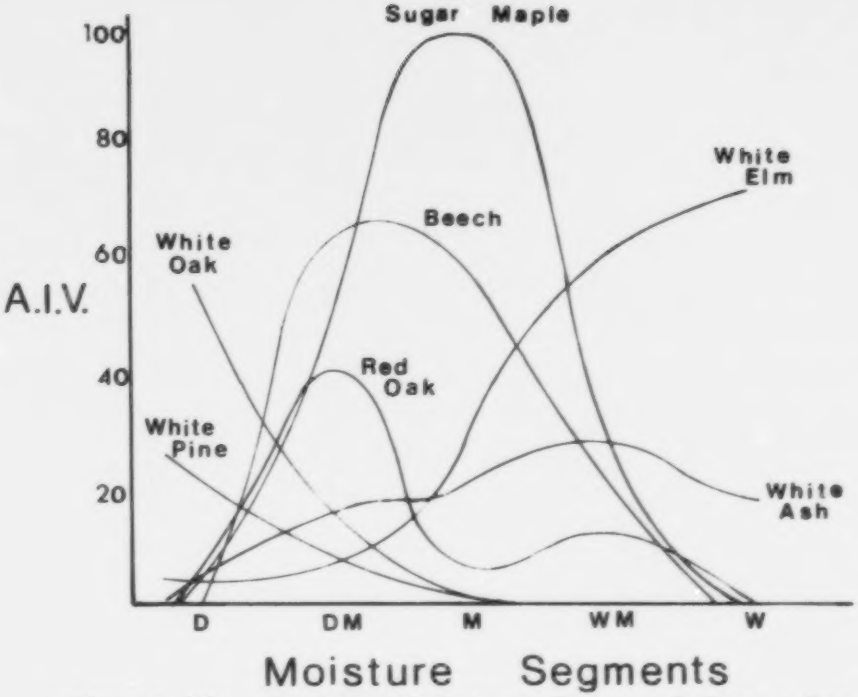

Figure 28: Optimum Moisture Range of Seven Species (Adapted from Maycock 1963: 410-411)

The average importance value (A.I.V) was determined by a species percentage presence in relation to soil moisture. Moisture segments are graded from Dry (D), Dry Mesic (DM), Mesic (M), Wet Mesic (WM), and Wet (W). The above pattern demonstrates that sugar maple and beech prefer soils with middle range moisture content, while white pine and oak are more commonly found on the dryer soils. Through forest disruption, the Iroquoian farming communities enlarged the habitat for fast growing, drought resistant tree species. This activity would also benefit a large variety of plants and shrubs not commonly found in the understory of mature forests.

The initial forest clearance for structures and fields would account for an early increase in the populations of berries, grasses and other herbaceous plants. Larger shrubs and trees, such as hawthorn, prickly ash, chokecherry, and dogwood would also exploit the newly enlarged habitat, although these species mature more slowly than grasses or bramble berries.

Hawthorn is a particularly good example of a large shrub primarily adapted to colonizing disturbed soils (Hosie 1979:228). In fact, Soper and Heimburger have suggested the widespread hybridization of hawthorn species began with prehistoric forest clearance (1982:170). Hawthorn at Wiacek is the fifth most frequent plant taxa and represents one of the largest samples of Cratageous sp. recovered from an Iroquoian site. The recovery of a relatively large quantity of these seeds infers the presence of land in the earlier stages of plant succession within the site catchment area (for a detailed discussion of vegetation regeneration, see Heidenreich 1971:187-188).

Village relocation throughout a specific region would result in a more open forest habitat with several stages of vegetation regeneration within foraging distance of an occupied settlement. Under these circumstances, exploitation of wild plant foods not often found in a mature forest environment could be a significant part of the overall subsistence strategy. In fact, this concentration of plant resources would compensate for the restricted mobility of a people concerned with successful horticulture.

Determining the extent of successional vegetation at any specific point in time would require more exact knowledge of the distribution of Iroquoian farming communities throughout the prehistoric sequence. With the present limited knowledge of site locations and the quantities of successional species represented in this analysis, several extant clearings may be indicated during the period of the Wiacek occupation. The area of oak and pine recorded in the nineteenth century suggests that by the protohistoric era, much of the central township had been cleared.

Further research in the region could investigate several implications which arise out of this discussion of successional vegetation. For example, through charred wood identifications, evidence may be found for the re-occupation of previously cleared areas. Alternately, if archaeobotanical studies indicate that horticultural communities continually exploited mature forests for the fresh soils and ready supply of fuel wood provided, these resources could be considered one of the primary criteria when new settlements were established.

Indications for the large scale burning of regrowth should also be considered when there is ample evidence that open forest habitat was intentionally maintained by native peoples throughout the Northeastern United States (Day 1953). This environmental alteration was practiced for the purposes of improved hunting, open travel, warfare and increasing suitable habitat for important plant and animal species.

Lastly, through documenting the frequencies of floral and faunal remains through time, the role of successional vegetation in the overall subsistence strategy may become more firmly established. It is probable that the presence of this resource would have reduced stress or reduced the need for wide ranging, time consuming foraging strategies for successive, increasingly more popuous occupations.

Conclusions

The identification of charred plant remains from the Wiacek site represents a large and diverse sample of both domesticated and wild plant foods. Charred maize was the most abundant plant remain and would appear to have provided the largest portion of plant food consumed. The other domesticates are evidence that bean, squash, sunflower and tobacco had been introduced to the region south of Kempenfelt Bay by at least 1400 A.D. The numbers and variety of charred wild seeds recovered likely represent only a small percentage of the species commonly exploited and attests to their importance as a dietary supplement.

The charred wood identifications suggest that the site was established in a mature hardwood forest. The early survey records reveal that a more varied arboreal environment existed historically. This discrepancy has been interpreted as the result of substantial prehistoric alteration of the natural environment. It has also been suggested that the practice of shifting horticulture increased the productivity of economically or medicinally important wild plants as many of the identified species from Wiacek are rare or widely dispersed members of a mature forest, but rapidly colonize abandoned or disturbed areas.

Finally, the quantity and distribution of charred plant remains demonstrates that by the late Middleport stage of development in this area, the subsistence base recorded for the historic Iroquois was established at the Wiacek site and well beyond the incipient level.

Chapter VI

RADIOCARBON DATES

Two samples of carbonized wood were submitted to Teledyne Isotopes radiocarbon laboratory for dating. The charcoal was selected from House 1 and House 2 features that appeared to present no contextual problems and which produced enough charcoal for the dating technique. In the absence of large pieces of charred wood, smaller fragments obtained by flotation were submitted. The results of this analysis are listed in table 62.

After receiving the first dates and expressing some concern to the lab regarding what appeared to be consistently early age determinations, Teledyne ran the remainder of the large sample from H2F91 producing the somewhat later "reassay" date also given in the table 62.

Table 62. Radiocarbon Determinations*

Isotopes No.	Provenience	Age B.P.	Age A.D.
I-13537	H1F17	750±80	1200±80
I-13538	H2F91	730±80	1220±80
I-13538C (reassay)	H2F91	660±80	1290±80

** Samples were treated for the removal of carbonates and acids. The Libby half-life of 5568 was used to calculate ages.

If taken at face value the dates presented above appear early for the Wiacek occupation. If accepted, comparisons with other Middleport assemblages (see ceramic discussions) imply that the Wiacek ceramics were advanced for their time or that our understanding and dating of the rest of the Middleport Horizon is in error. Alternatively, accepting the dates as good dates, it may be argued that there is a discrepancy between the target and dated events (Dean 1978) resulting from the dating of old wood. Given the results of the floral analysis there is a great likelihood that mature trees constituted a major portion of the fuel used at the site. Consequently, given the possible ages of mature stands of maple-beech forests, the presence of wood charcoal predating the site occupation by a century or more is within reason in this instance.

Though the carbon dating of Iroquoian assemblages may be "fine tuned" (cf. Timmins 1985) through correction (Klein et al, 1982) in the Wiacek example a mean corrected date of A.D. 1285+30 is of little consolation particularly when the possible magnitude of error in the dating technique itself, or through the dating of "old wood" is considered.

As such the evaluation of the Wiacek dates is difficult at this time, precluded by the imprecisions of ceramic typology and seriation, the possibility of sloping horizons, the inadequacies of carbon dating techniques and correction factors, the probable discrepancy between target and dated events and our undoubtedly simplistic concept of Middleport. A refinement then of Wiacek's temporal placement must therefore await further excavation, analysis, and dating of similar components within this northern focus. Until then Wiacek must be considered as a Late Middleport component based on its ceramic type frequencies and comparisons with other components of the Middle Ontario Iroquois Stage.

Chapter VII

SUMMARY AND DISCUSSION

Introduction

The Wiacek site (BcGw-26) is a late Middleport village located 4 kilometres south of Kempenfelt Bay and 12 kilometres west of Lake Simcoe in Innisfil Township, Simcoe County, Ontario.

The site was identified during an archaeological survey of the area to be impacted by a proposal to construct an interchange between the 400 Highway and the Twelfth Concession Road of Innisfil Township. In advance of construction the Ontario Ministry of Transportation and Communications conducted excavations on parts of the site that were threatened by construction and brought the project through to the completion of this report.

Excavations proceeded with the mechanical removal of disturbed plowzone overburden on the proposed right-of-way and the recording and excavation of undisturbed cultural features below. During this exercise two longhouses were identified and completely excavated and portions of several additional houses and outside of house areas were investigated. Parts of several plow disturbed middens were also sampled.

Artifact recovery was accomplished generally through the use of 1/4" mesh screens and by bulk soil samples that were sorted by flotation and collected using screen sizes ranging from .59 mm to 2 mm depending on the fraction (light or heavy) collected. These bulk samples significantly contributed to the recovery of archaeobotanical and archaeofaunal materials but added little, in this instance, to the collection of other cultural remains.

Settlement Pattern

The Wiacek site is situated on the Innisfil or Simcoe uplands at the headwaters of a small tributary of Lovers Creek. The site location offers fresh water and well drained arable lands but it is not particularly well suited for its topographical relief which contributes to the defense strategy of some Iroquoian villages. The absence of a palisade or other evidence for warfare indicates that defense was not a major concern in choosing the site's location.

Site size, determined by intensive controlled surface collection is estimated at .74 hectares. Bordering the area of occupation thus defined were small plow disturbed midden deposits and within this area are 5 identified houses and enough space for a few more. Two houses that were completely excavated measure 36 and 41 metres long and 7.5 metres wide. House width tapers gradually toward rounded house ends with central doorways.

House interiors exhibit similar configurations including end storage areas, bench lines against the side walls and a central corridor, but details of these zones differ somewhat between houses. The relatively clean floor areas encompassing from 6 to 8 metres of the house ends are interpreted as communal storage areas. Narrow strips, 1.3 to 1.5 metres wide, along the interior side walls of the houses are referred to as bench or bunk lines following historic descriptions. In House 1 these are simply clean floor areas that are not well delineated by bench support posts as they are in House 2 where the east bench line is a clean floor but the west line is marked by large and deep features interpreted as storage pits. Central corridors are marked by the characteristic line of central hearths which are interspersed with or surrounded by circular clusters of 150 to 175 small post moulds, possibly temporary drying racks or sweat baths that have been torn down and reconstructed numerous times. This area also abounds in interior support posts and smaller pits, some which are primarily ash filled, others containing a mixture of ash with other soils and some which were filled with general refuse from the house floor. House 2 contains many more interior posts and features and a greater density of cultural material per volume excavated than does House 1, suggesting differential use, or a longer period of occupation for House 2.

The distribution of cultural materials within the village reflects patterns of use, discard and chance preservation. Most tools were used, stored or lost within the houses though the majority of rejected implements were gathered and deposited in the middens. The majority of faunal remains were located in the houses. In contrast, carbonized plant remains as a whole appear randomly distributed between features on the site, perhaps reflecting their chance alteration by heat. The few exceptions appear to represent special purpose features associated with particular types of floral materials.

Artifact Analysis

Aside from the floral and faunal specimens, 6120 artifacts are culturally modified pieces of stone, bone and clay. After removal of unanalysable microsherds and microdebitage, the 2147 analysable specimens are dominated (62%) by ceramic artifacts, principally pottery vessel and pipe fragments.

The Wiacek pottery vessels are generally well made and exclusively grit tempered. Vessel rims are predominately collared with collars being incipient to moderately well defined and decorated with short oblique linear stamped and/or horizontal trailed motifs often extending onto the upper portion of moderately constricted vessel necks. Vessel shoulders are characterized by undecorated round forms. Vessel bodies are predominately plain or smooth (78%) followed by ribbed-paddle (20%) and smoothed-over-cord and check stamped. Elongate globular vessel bodies are characteristic of the Middleport period but no examples could be reconstructed from Wiacek.

Castellations are present on approximately one out of five vessels and are a slightly more common attribute of juvenile vessels where they occur on one out of every three. The castellations are simple, constituting a slight deformation of the rim and corresponding motif, rarely with any associated thickening of the rim profile or change of pattern of the motif.

The Wiacek rim sherds were classified according to MacNeish's ceramic typology and compared to the reported spatial and temporal distribution of the types. The predominance of late Middleport and early Late Prehistoric pottery types argues for the site's temporal placement. Further comparison of Wiacek's ceramic assemblage with 30 other components shows Wiacek to cluster with sites bracketed by A.D. 1350 to 1450 dates, somewhat later but more convincing than the mean corrected carbon 14 assay of A.D. 1285±30.

Pipes are common at Wiacek with a vessel to analyzable pipe bowl ration of 1.4 to 1. Conical bowls predominate pipe bowl forms with lesser frequencies of flared, barrel, trumpet and vasiform varieties. Slightly over half of the pipe bowls are decorated with trailed horizontal lines underscored by punctates.

Lithics in the Wiacek assemblage are represented by a wide variety of material types and tool forms. The high frequency of utilized and edge retouched flake tools made on local materials may be contrasted with the low incidence of formalized tools such as points, scrapers and bifaces made on imported materials.

The absence of random or rotated cores and extensive use of the bipolar technique on small, locally available pebbles of Huronian and Balsam Lake cherts supplied flake blanks for the simple flake tools recovered, while a small demand (or supply) of larger and bifacially flaked tools was met through trade. Notably these points, bifaces, and scrapers exhibit a degree of craftmanship which does not appear on any tool made from local cherts, indicating that these specimens were likely imported in a finished state.

These characteristics of the Wiacek lithics are no doubt attributed to the lack of local sources of sizable pieces of chert, either large bedded chert formations or large chert modules from secondary sources, required to provide sizable flake blanks suitable for making larger bifacial tools and scrapers. The absence of such sources in the area had undoubtedly hindered the development of more sophisticated techniques of tool production, particularly bifacial flaking, which generally proceeds from larger flake blanks than can be obtained locally. This is supported by a few specimens, damaged bifaces, that have been reworked or repaired by local craftsmen. Here the steep unifacial retouch is distinctive from the fine bifacial workmanship of the original craftsmen suggesting that the art of bifacial reduction was virtually unknown to the Wiacek artisans.

The scenario presented above is not a unique incident but appears typical of the Late Woodland occupations of Simcoe County and no doubt sets the stage for the rapid and widespread acceptance of European iron and brass implements upon their arrival late in the sixteenth century. However, contrary to suggestions that the superior quality and more effective European iron and brass tools quickly undermined and replaced native craftsmanship and their products, the evidence from the Wiacek site indicates that this is an overstatement, and that the impoverished lithic tool kit witnessed by Historic Huron settlements has considerable antiquity. The widespread acceptance and adaptation of the iron and brass industry historically would thus appear more a result of material availability than superiority. The same cannot be written for the Historic Neutral.

The heavy stone assemblage from Wiacek includes hammerstones, anvil and pitted anvilstones, a mano, and a variety of unique items but the ground stone bladed tools are most common. Their variable sizes and forms are best described by the traditional classificatory terms, adze and axe, likely woodworking tools and a third small, finely honed, and probably halfted variant, perhaps used in hideworking.

Worked bone, shell, teeth and antler artifacts account for 2% of the cultural remains and are thus in proportion to other similarly dated assemblages despite the scarcity of large mammal and bird remains in the faunal sample. The range of artifact types is also representative of period assemblages though some rare items are not present in this small sample.

Faunal Remains

As outlined in the analysis section of this report, various natural, cultural, sampling and analytical processes bear heavily on the resulting interpretations of archaeofauna, as well as on many other parts of the assemblage. While some of these factors can be controlled during excavation and analysis, others cannot; however, through an ever better understanding of these influencing processes it is possible to improve our interpretations or at least be aware of their potential misgivings.

With respect to the Wiacek faunal collection, its recovery is highly attributed to the flotation samples. The 6 mm (1/4 inch) mesh screens used to excavate over 90% of the soil examined produced approximately 3% of the faunal remains while the remaining 97% were recovered in the 2 mm mesh used to collect the heavy fraction of the flotation samples. As suggested by this data alone, the 21,168 faunal specimens recovered, weighing .6 kilograms are small and highly fragmented - an expected end result of a faunal diet dominated by fish.

The species identified indicate that most were taken, likely by net, from the warm, weedy shallows of Kempenfelt Bay, four kilometres to the north of the site rather than from the cold, spring fed Lovers Creek and tributaries adjacent to the site. This distance between the site and the location of fish harvesting stations is supported by a high ratio of vertebrae to cranial fragments, suggesting off site processing. This distance may also help to account for the absence of any fishing implements in the tool assemblage.

Notably the Lewis site (BcGv-3) a small Iroquoian camp reported by Hunter (1978), by virtue of its location at the mouth of a creek on Kempenfelt Bay, likely represents such a fish harvesting station. As the last known site of this type on the Bay it should be given immediate attention as it is presently endangered by development of this lakeshore property.

The remains of mammalia are limited (12.5%) compared to that of fish (83.5%). This is especially true of the larger species as emphasis within the identifiable mammalia (NISP=307) is on small to medium sized species, particularly squirrel and chipmunk. Of the larger mammals, bear represented by a single specimen - a canine pendant, and deer represented by 8 specimens, several of which are worked bone implements, provided little and perhaps no contribution to the diet of the Wiacek people.

It is enlightening to consider the Wiacek lithic assemblage in conjunction with the faunal remains. The scarcity of end scrapers or snubnose scrapers and projectile points together with a predominance of utilized and unifacially retouched flake tools, many of which likely functioned as scraping implements, echoes the small size of the mammals represented in the faunal sample and begs the inference that bow and arrow hunting played a minor role in the acquisition of both food and clothing, small mammals being taken by trapping. The small flake tools at Wiacek likely aided in processing the skins of small mammals. However, one may ask, where did the larger skins and furs necessary for clothing come from in the absence of representative mammalian remains? Perhaps the well documented historic trade in furs represents an intensification or perhaps simply a greater visibility of an essential, yet underestimated prehistoric trade pattern.

As indicated by the Wiacek archaeobotanical remains the site was situated in a mature maple-beech forest and judging from the site's early date for village occupations in the Innisfil Uplands, much of the region was likely characterized by a similar vegetation cover at this time. Since the composition and high canopy of such a forest offers little to support a large mammal population the reconstruction of Wiacek's environs based on the floral remains supports that suggested by the identified fauna. Most mammals that were identified thrive within the canopy of a mature forest or in forest openings provided in or adjacent to wetlands and fields.

In the absence of a substantial mammal population in the environs of the Wiacek site it is understandable why such a high proportion of the faunal assemblage is composed of fish. With subsequent village occupations and their creation of increasingly larger areas of secondary growth, as earlier villages and associated fields are abandoned for new, it is expected that the importance of mammals to the diet of these later occupations would reflect this culturally produced environmental impact through an increase in the representation of mammalian remains. Judging from the little available data on historic assemblages this plausable increase in the mammal population appears never to have reached substantial proportions, likely as a result of continuous and increased native exploitation.

Calcined faunal specimens are prevalent at Wiacek especially in the flotation sample and in particular among the fish remains. These results reflect the small size and fragility of calcined bone, especially that of fish, and the biased results obtained from rigorous dry screening using coarse mesh screens as opposed to flotation. It is also notable that the often cited historic references to the ritualistic avoidance of burning fish bone may not actually be supported archaeologically but may simply reflect inadequate sampling techniques. There is also some suggestion that the avoidance of burning animal remains was observed only during hunting or fishing expeditions and did not apply to the treatment of remains in villages. Regardless, the taboo obviously did not apply to the occupants of the Wiacek site and their treatment of animal remains, at least while in the village.

Intra-site comparisons suggest a differential deposition of mammal as opposed to fish remains whereby a higher proportion of mammal bone is deposited in the middens as opposed to the houses. Although these results may simply reflect better preservation of larger elements in a plow disturbed midden, they are as likely a result of redepositing large obtrusive remains, such as the larger mammal bones, in designated midden areas whereas the less obtrusive fish bones would more easily escape detection in their primary discard location within houses. Similar results with respect to the size distribution of redeposited artifacts have been reported elsewhere (Kenyon n.d.) and are worthy of consideration in site sampling and inter-site comparison.

Comparisons between Houses 1 and 2 indicate that House 2 had a heavier concentration of refuse and a greater number of features. Both sets of evidence suggest either a longer or more intensive occupation of House 2.

Any attempt at the delineation of a Middleport pattern of faunal exploitation is precluded by the magnitude of the region encompassed by this cultural manifestation and the variation witnessed by the natural biota across such latitudes; and, the changes that any given area experiences as a result of cultural historical land use patterns prior to the period being examined.

As one moves across the province from south to north there is a shift from an oak-hickory forest which dominates the Carolinian biotic province to the maple-beech forest of the Carolinian-Canadian transition zone in which Wiacek is situated. In the south a large population of mammals, most notably white-tailed deer, is indigenous and, as expected, was extensively exploited by aboriginal populations from at least Middleport to Historic times dominating virtually every assemblage. Through time however, perhaps simply as a result of human predation, the archaeological record appears to show a slight de-emphasis of large mammals in favour of a wider range of small mammals, birds and fish.

On the northern extreme a small indigenous population of mammals is supported by the maple-beech forests leaving little alternative to available meat but fish. As such, fish constitute the major available meat source here supplemented by the few available mammals and birds. Through time, however, with the clearing of primary forests and the use and abandonment of fields, mammal habitat is increased but the concomitant increase in human predation, no doubt kept this increasing mammal population to a minimum, maintaining the alternative, fish, as an important meat source through time.

Between the southern or northern extremes, presumably along the northern edge of the Carolinian biotic province we might expect that the fish vs. mammal emphasis in faunal assemblages may be more pronounced depending on local soils, vegetation cover and previous aboriginal land use. Theoretically the earliest intensive (Iroquoian) settlements could impact the local mammal population so drastically that subsequent villages in the same area may show a major faunal shift from emphasis on the exploitation of mammals to that of fish within a short sequence of occupation.

Floral Remains

Discussions concerning the importance and effectiveness of flotation to the recovery and interpretation of Wiacek's floral remains echoes those of the faunal analysis. A brief example indicates that 85% of the feature fill sorted using the on site 6 mm mesh screens produced only two taxa consisting of 2.4% of the charred corn and 4.6% of the butternut while the remainder of the assemblage consisting of over 8,000 specimens is attributed to the flotation samples.

The charred wood assemblage is predominately composed of maple and beech which characterizes the indigenous forest of this region. These findings substantiate the extent of the primary forest cover in the site vicinity as indicated by the preferred habitats of the species represented in the faunal sample as well as by those that were rare. As such, it may be concluded that the Wiacek village and fields were hewn from such environs and not from the secondary growth of previous occupations.

With the clearing of primary forest for village and fields the frequency of economically important herbaceous plants and shrubs is increased and their collection and use is also evident in the floral sample.

Following the Iroquoian occupation of the Innisfil uplands the records of surveyors in the early nineteenth century provide a view of the upland forests in the process of rejuvenation. At this time there is a strong oak and pine association with the locations of known village sites. Today this rural landscape is trimmed with the stumps of enormous pines, the result of a second wave of farmers during the nineteenth century.

All documented Iroquoian cultigens, corn, bean, sunflower, squash and tobacco were identified in the sample recovered. The size and shape of the corn kernels compares most closely with the eight-rowed Northern flint variety. Sunflower, beans, and squash seeds are rare in comparison to corn but this is typical of Iroquoian assemblages, perhaps reflecting importance but undoubtedly, also their method of preparation. The sunflower seeds appear small in comparison to contemporaneous samples from farther south perhaps due to their recent introduction to the shorter growing season along this northern fringe of native horticulture.

Charred wild nuts and seeds representing at least 16 genera have many recorded structural, dietary and medicinal uses as outlined in the text, but direct evidence for their particular use is only rarely supported by their archaeological context.

In summary, Wiacek has provided a detailed glimpse of an early Iroquoian settlement in Simcoe County and offers further insights into the excavation, recovery and interpretation of such remains. In addition, the site offers a basis for the evaluation of the changes to follow during the late prehistoric and historic periods, yet a full appreciation of exactly what the Wiacek site has to say will only be known with the infilling of some major gaps in this areas archaeological record.

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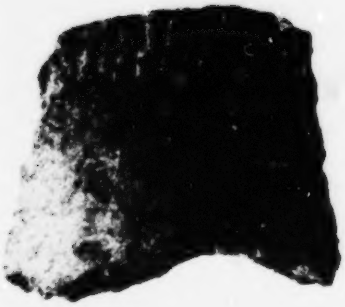
Figure 29. Wiacek Site Rimsherds

1.	Ontario Oblique
2,3.	Iroquois Linear
4-8.	Ontario Horizontal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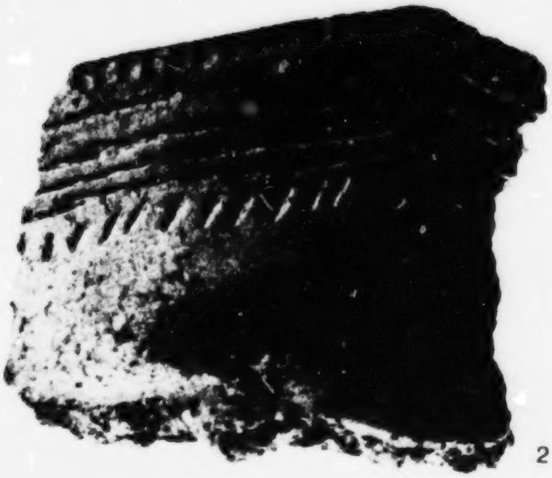
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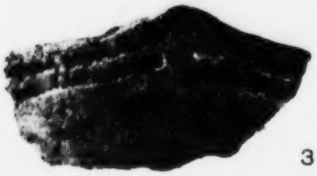
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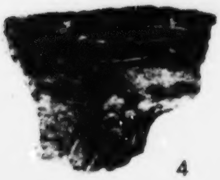
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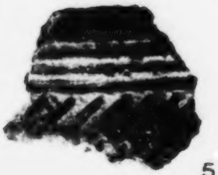
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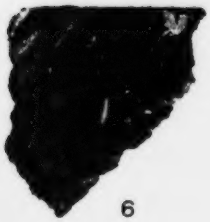
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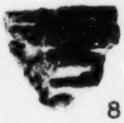
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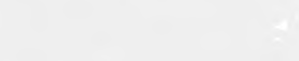

Figure 30. Wiacek Site Rimsherds

1-6.	Middleport Oblique
7-13.	Pound Necked

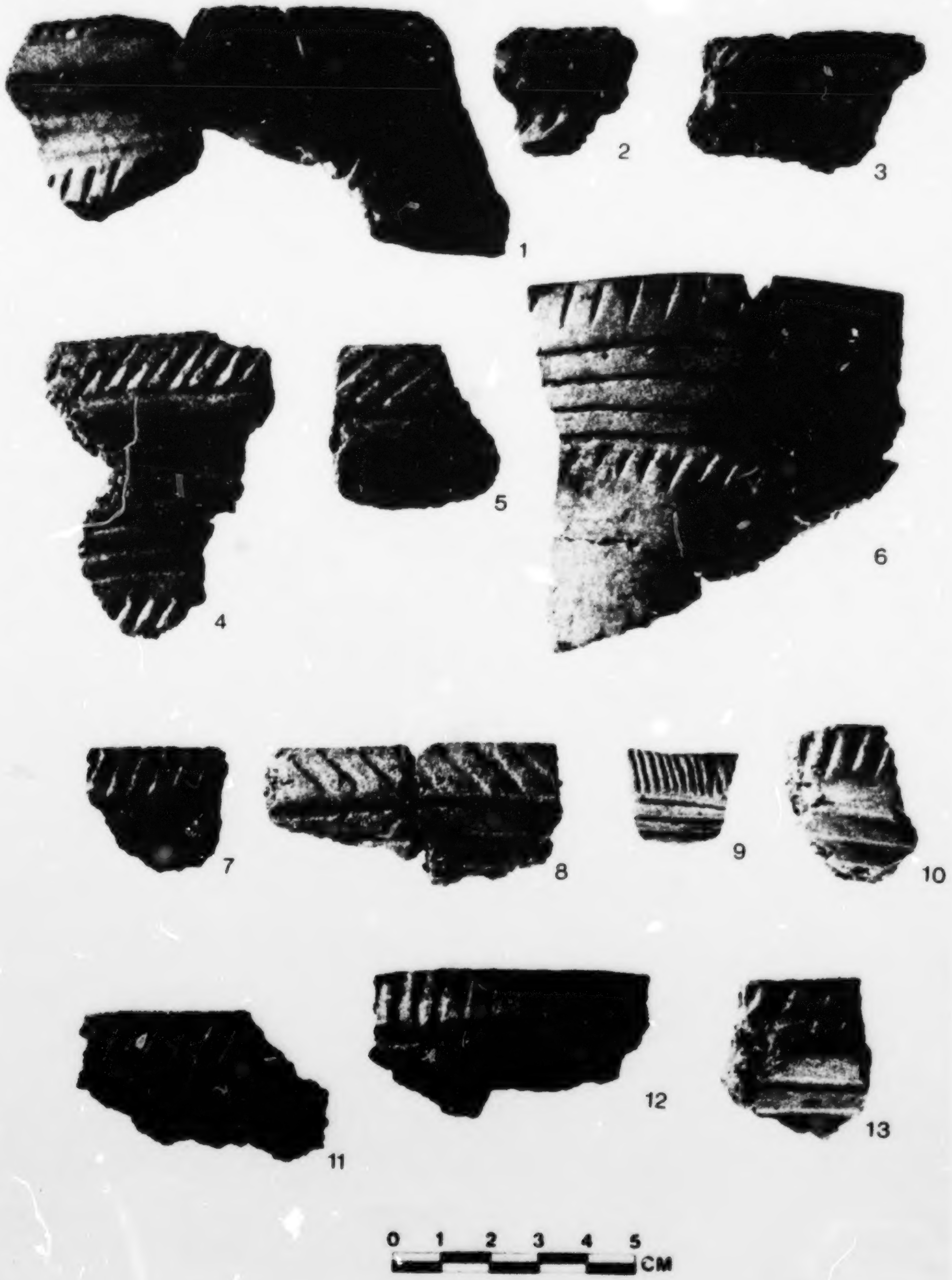
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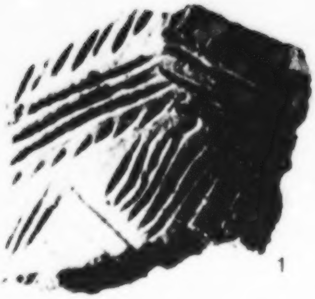
Figure 31. Wiacek Site Rimsherds

1,2.	Black Necked (concave interior profile)
3-6.	Black Necked - Early Varient (convex interior profile)
7-9.	Lawson Opposed
10-12.	Pound Blank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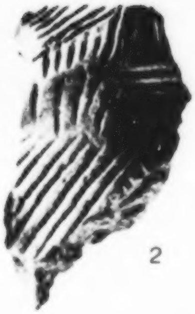
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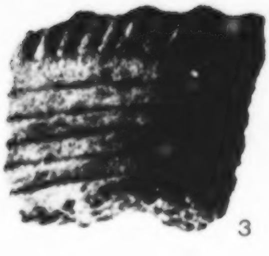
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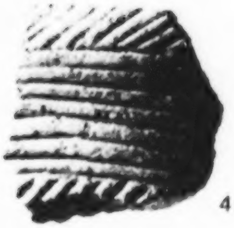
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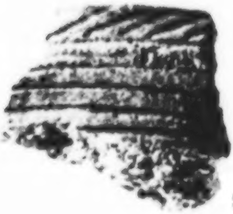
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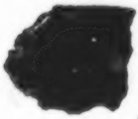
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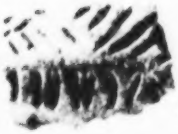
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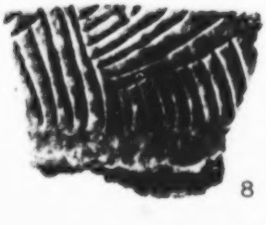
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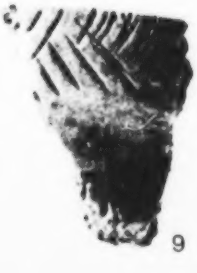
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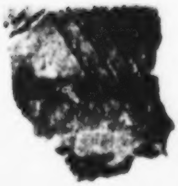
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Figure 32. Wiacek Site Rimsherds

1,2.	Middleport Criss-Cross
3,4.	Copeland Incised
5.	Sidey Crossed
6-8.	Huron Incised
9,10.	Niagara Collared
11.	Ripley Plain
12,13.	High Collared Rims
14-16.	Miscellaneous Untyped Rims

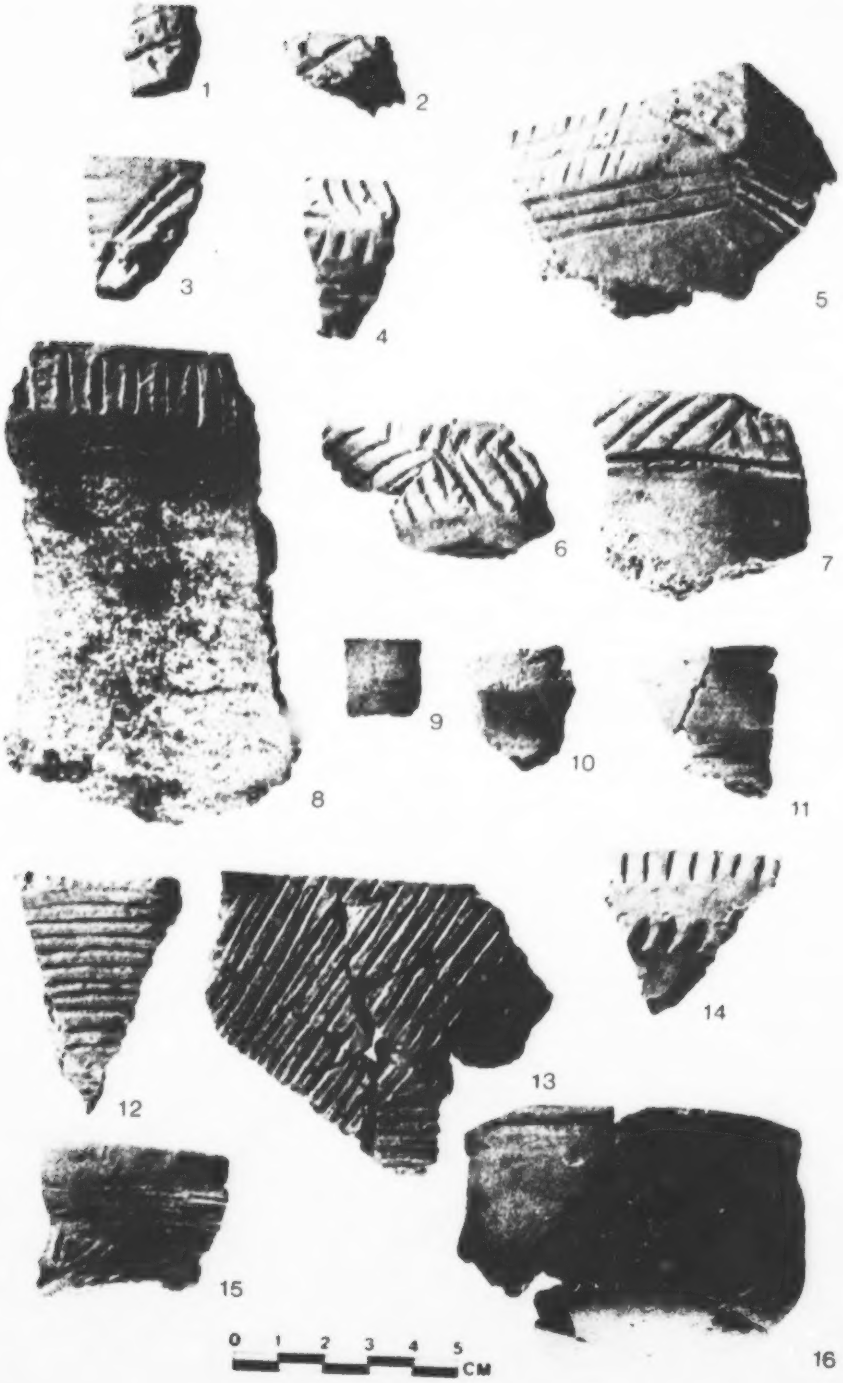
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Figure 33.

Wiacek Juvenile Ceramics

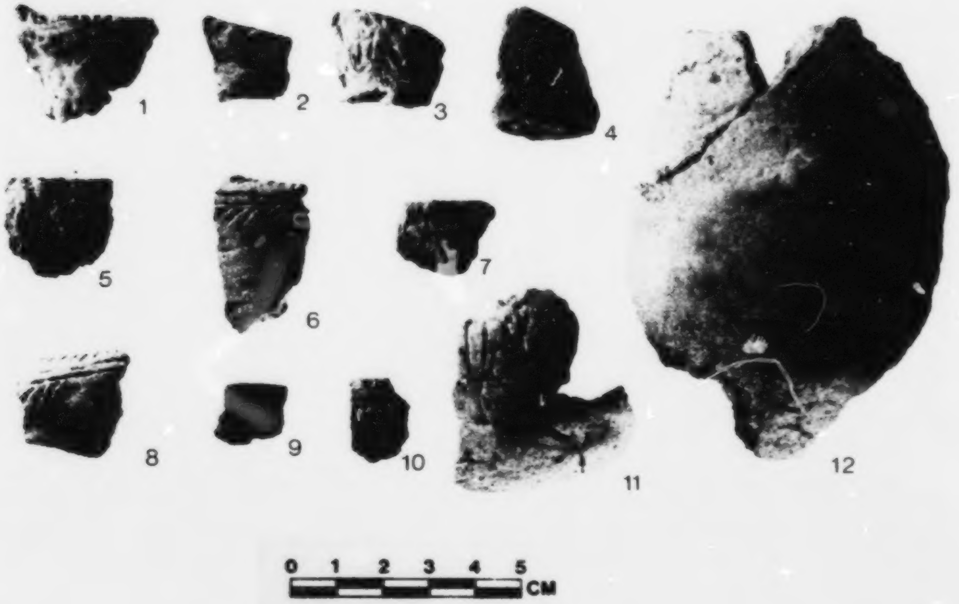
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Figure 34. Wiacek Pipe Bowls

1,9.	Conical Pipes
	2 - a complete juvenile specimen 5 - a reground trumpet pipe
10-14.	Flared Conical Pipes
15.	Vasiform Pipe
16,17.	Trumpet Pipes

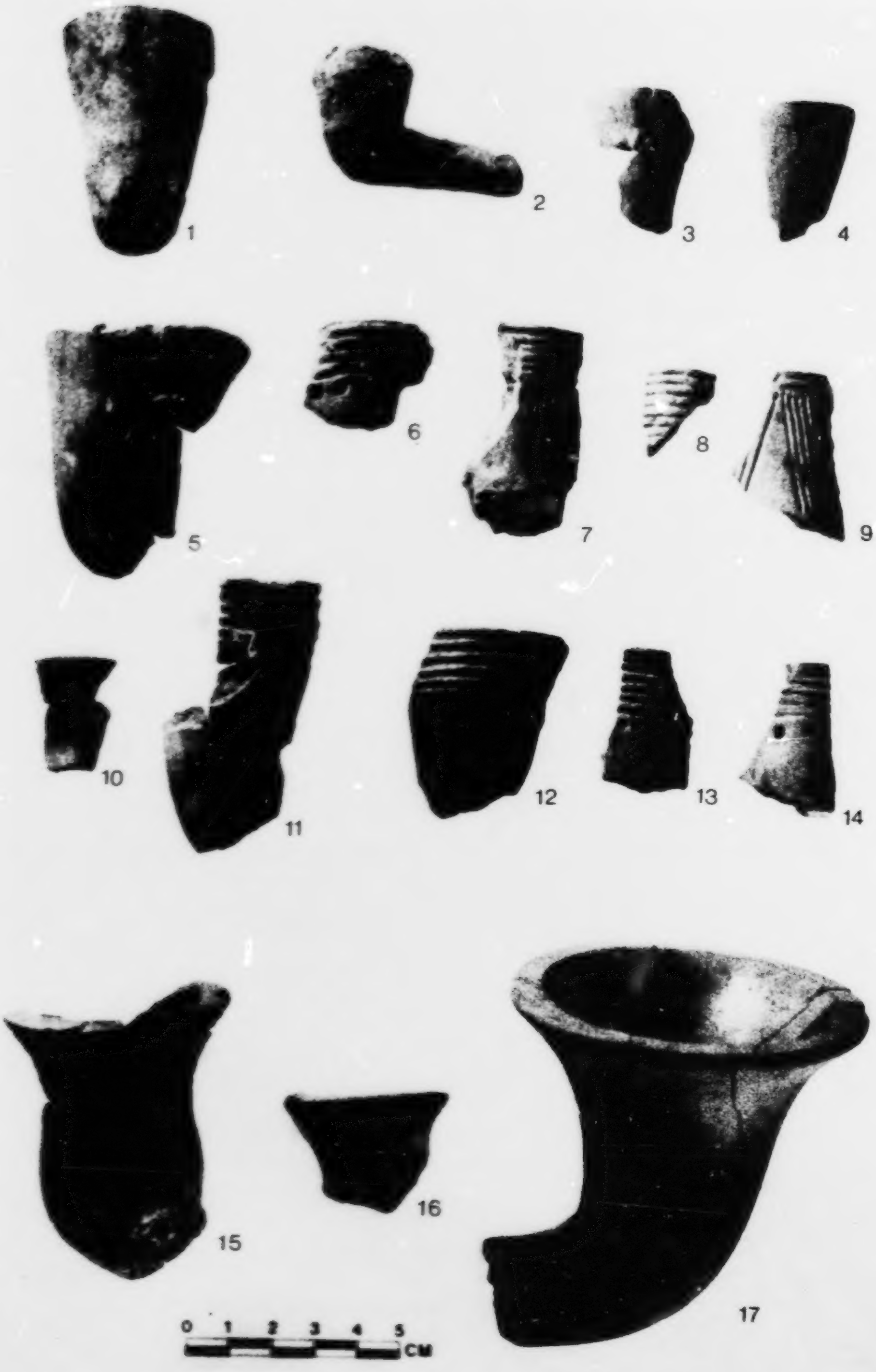
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Figure 35. Wiacek Chipped Stone

1-6.	Bipolar Cores
7-20.	Edge Retouched Flake Tools
	(9-11 appear to represent projectile points)
21-22.	Denticulates
23-26.	Utilized Flakes
27-29.	End Scrapers
30,31.	Projectile Points
	Note steeply retouched/reworked lateral (30) and basal (30,31) edges.
32.	Drill
33.	Onondaga Chert Biface

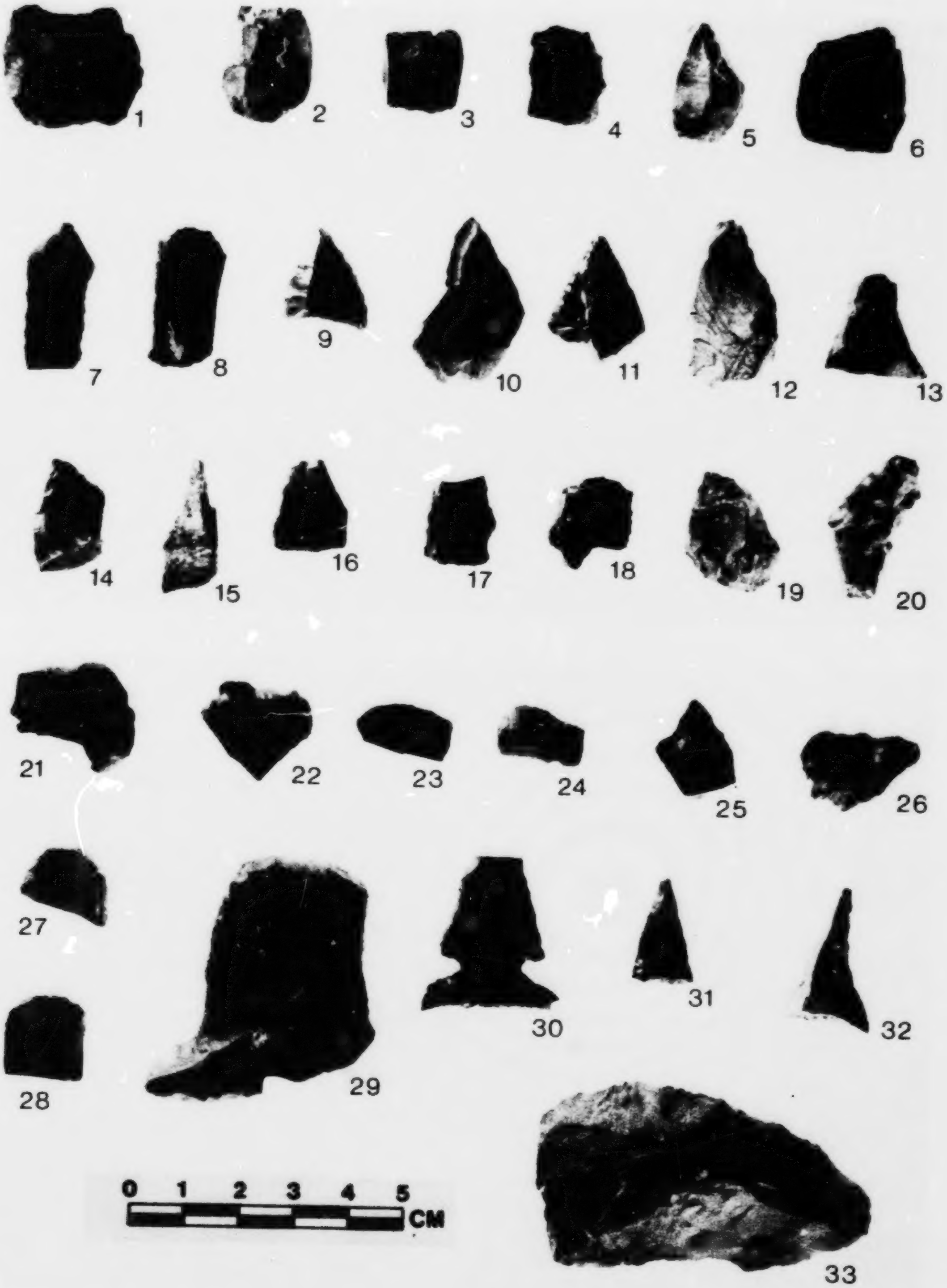
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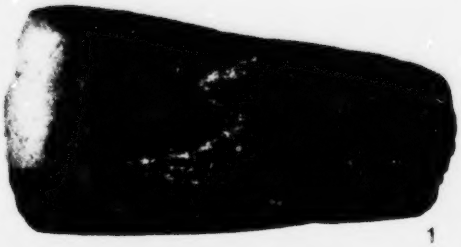
Figure 36. Wiacek Ground Stone Tools

1-4.	Adzes
5.	Notched Axe
6,7.	Celts
8.	Cut, ground and polished piece of phyllite
9.	Tabular piece of chlorite schist with abraded edges suggesting use in a saw-like manner
10.	Shaft Abrader
11.	Mano



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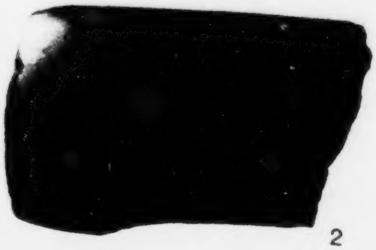

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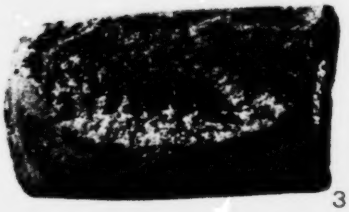

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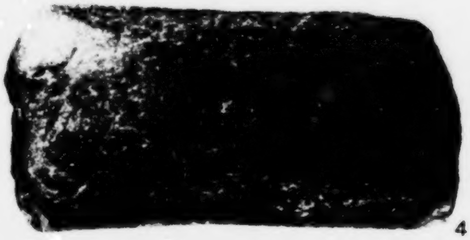

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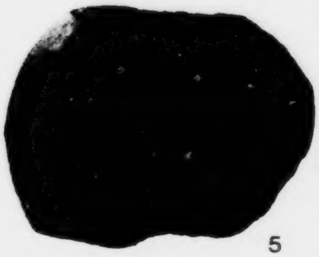

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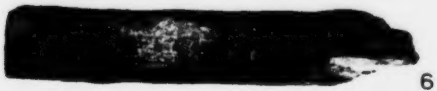

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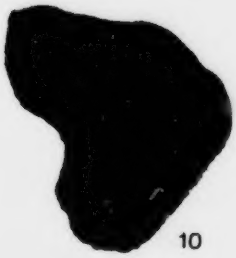

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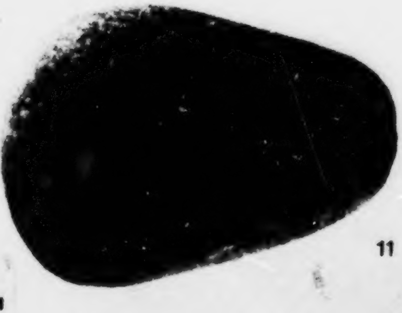

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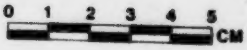
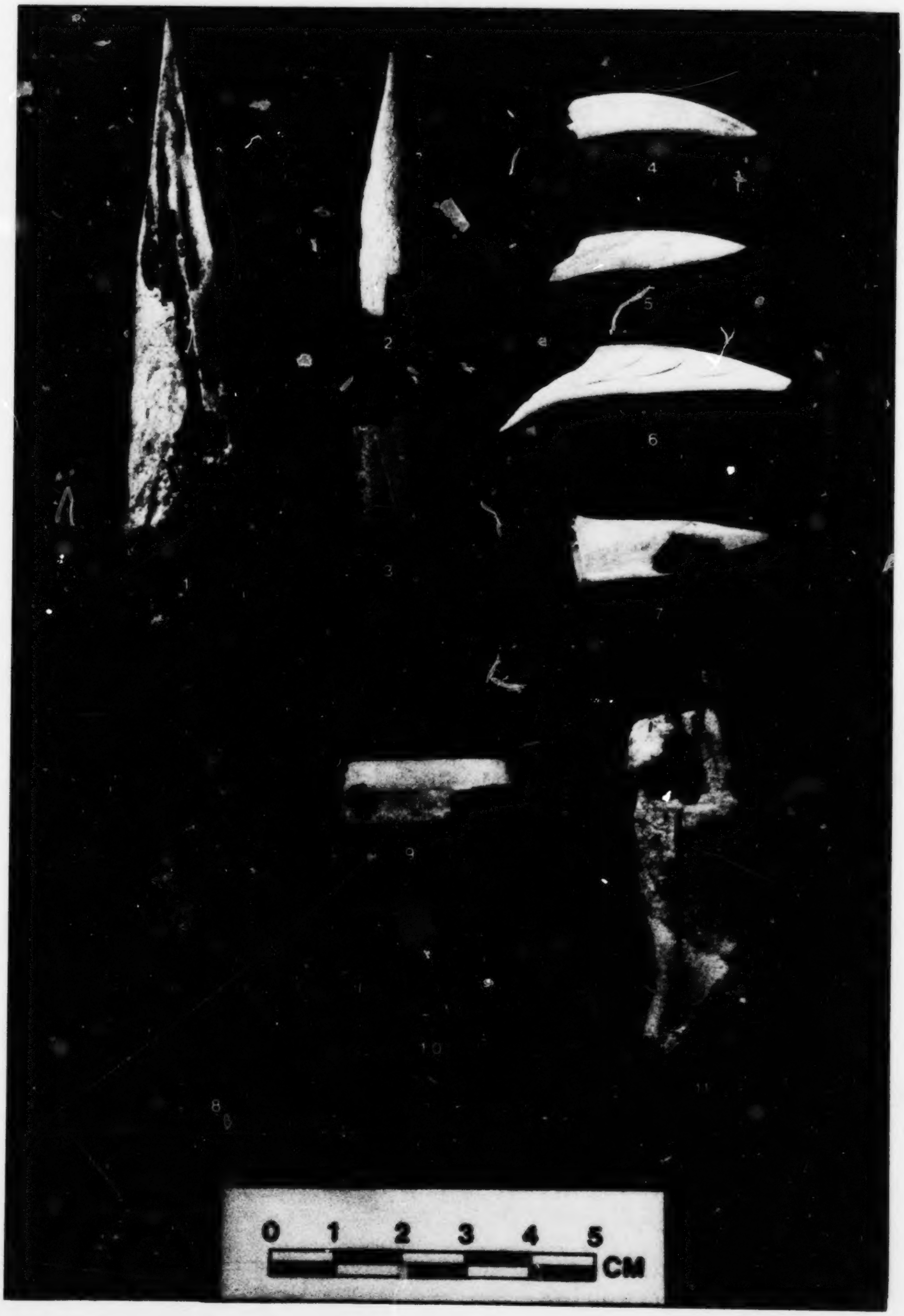


Figure 37. Worked Faunal Materials

1,2.	Bone Awls
3.	Large mammal bone fragments showing groove and splinter modification
4-6.	Modified Beaver Incisor "Chisels"
7.	Bird Bone Point
8.	Deer Phalanx drilled through proximal and distal ends
9.	Bone Bead
10.	Shell Bead
11.	Bear Canine Pendant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APPENDIX A

Wiacek Feature Description

Key to Table

Provenience

As outlined in text under section entitled Excavation Data Recovery and Provenience Designations

Interpretation

S - Storage Pit
H - Hearth
M - Midden
A - Ash Pit
P - Post Support

Length, Width, Depth

Maximum feature dimensions in centimetres

Volume (L)

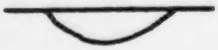
Estimated feature volume in litres

Float Vol. (L)

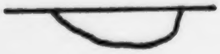
Flotation Sample Volume as measured in Litres

Profile

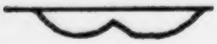
B - Basin



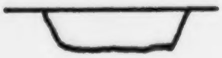
SB - Sloped Basin



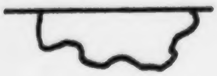
DB - Double Basin



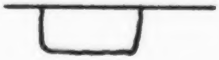
F - Flower Pot



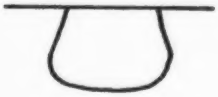
I - Irregular



S - Square



Be - Bell



Fill

(Listed in order of abundance per layer)

H - Homogeneous
M - Mottled with
L - Lensed with
/ - Layered (over/under)
T - Topsoil

S - Subsoil
A - Ash
C - Charcoal
F - Fire Reddened
Le - Leached White Sand

Floral (f)

Frequency of charred floral remains recovered (excluding carbonized wood)

Faunal

f - frequency of faunal specimens recovered
W(g) - weight in grams of faunal specimens recovered

Pottery

B - bodysherds, S - Shouldersherds, N - necksherds
R - rimsherds, M - microsherds

Lithics

D - debitage, M - mocrodebitage, C - cores
U - utilized flakes, R - retouched flakes

Other

Listing of other artifacts recovered from provenience unit

OUT OF HOUSE FEATURES

	Description								Contents													
										Faunal		Pottery					Lithics					Other
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	f	w(g)	B	S	N	R	M	D	M	C	U	R	
F1	-	58	50	15	26	0	B	MSTC	0	0	0	2	2	2	2	3	2	3	1	1	1	
F2	-	262	120	35	411.5	0	B	HTCF	0	0	0	4	-	5	2	48	-	-	-	-	-	2 pieces fired ceramic waste
F3	-	49	43	21	25.7	0	SB	MTSC	0	0	0	-	-	-	-	-	-	-	-	-	-	
F4	-	63	34	19	21.3	0	B	MTSC	0	0	0	-	-	-	-	-	-	-	-	-	-	pipe stem fragment
F5	-	125	66	10	39.2	0	DB	MTSC	0	0	0	-	-	-	-	-	-	-	-	-	-	
F6	-	73	50	23	43.9	0	(B)	MSTC	0	0	0	-	-	-	-	-	-	-	-	-	-	
F7	-	105	75	25	103	0	(B)	MSTC	0	0	0	-	-	-	-	-	-	-	-	-	-	
F8	-	77	38	17	24.4	0	DB	MTSC	0	0	0	-	-	-	-	-	-	-	-	-	-	
F9	-	50	30	10	7.4	0	SB	MTSC	0	0	0	-	-	-	-	-	-	-	-	-	-	
F10	-	212	150	22	366.3	87	B	MST/HTO	219	0	0	1	-	2	-	20	1	-	-	-	-	
F11	-	185	180	16	139.4	0	DB	MSTC	0	0	0	-	-	-	-	-	-	-	-	-	-	
F12	-	62	62	8	16.1	19	SB	HTC/MSCT	12	0*	0	-	-	-	1	6	1	1	-	-	-	
F13	-	220	130	46	642.8	10	B	MTSCLS	65	0	0	8	-	4	3	54	-	-	1	-	-	
F14	-	38	32	7	3.7	0	B	MTSC	0	0	0	-	-	-	-	-	-	-	-	-	-	
F15	H	115	63	5	16.1	15	SB	FMTSC	0	0	0	-	-	-	-	-	-	-	-	-	-	

OUT OF HOUSE FEATURES

Provenience	Interpretation	Description							Contents												
		Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
F16	–	126	40	36	95	38	B	HTC/MSTC	134	–	–	2	–	–	–	5	–	–	–	–	–	
F17	–	140	100	35	256.5	0	B	MTSC	0	–	–	–	–	–	–	–	–	–	–	–	–	Hammerstone
F18	–	100	100	15	78.5	0	B	MTSC	0	–	–	–	–	–	–	–	–	–	–	–	–	
F19	–	30	30	11	5.1	0	B	MTSC	0	–	–	1	–	–	–	–	–	–	–	–	–	
F20	–	112	70	22	90.3	0	SB	MTS	0	–	–	–	–	–	–	–	–	–	–	–	–	
F21	–	130	52	20	70.7	21	B	MTSCF	112	–	–	9	–	–	2	16	7	–	1	–	–	
F22	–	217	140	5	79.5	0	B	MTSC	0	32	1.63	10	1	–	–	108	6	4	–	–	–	
F23	–	153	56	12	53.8	18	F	MTSC	16	5	0.09	–	–	–	–	3	2	3	–	–	–	
F24	–	157	155	50	637	18	B/S	HTC/MTS	78	5	0.31	–	–	1	–	5	2	3	–	–	–	
F25	–	155	76	23	141.8	62	SB	MTSC/MTSC	121	33	0.50	11	1	2	1	5	2	6	–	–	–	
F26/27	–	311	203	20	251.3	39	DB	MTSCLA/HTC/HLe	107	37	3.93	15	–	5	6	39	12	–	–	–	–	Celt; hammerstone, 2 pipe bowl fragments
F28	–	36	22	13	5.3	0	F	TMSC	0	–	–	–	–	–	–	–	–	–	–	–	–	
F29	–	66	66	10	22.8	0	SB	MTSC	0	–	–	2	–	–	–	9	–	–	–	–	–	
F30	–	112	65	15	57.1	0	DB	SMTC	0	–	–	4	1	1	–	10	1	–	–	–	–	
F31	–	52	36	9	8.8	0	B	MTSCLS	0	14	6.44	–	1	1	6	–	1	–	–	–	–	1 piece fired ceramic waste

OUT OF HOUSE FEATURES

		Description							Contents												
										Faunal		Pottery					Lithics				
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol (L)	Profile	Fill	Floral (f)	f	w(g)	B	S	N	R	M	D	M	C	U	R	Other
F32	-	76	48	17	32.4	0	B	MTSC	-	-	-	-	-	-	-	9	2	1	-	-	-	
F33	-	160	74	15	140.9	37	SB	TMSCAFLA/HSCLe	100	244	7.72	1	-	-	-	10	1	5	-	-	-	
F34	-	82	39	8	13.3	0	DB	MTSC	-	-	-	3	-	-	-	-	-	-	-	-	-	
F35	-	124	124	23	185.1	0	B	MTSCLS	-	-	-	-	-	-	-	-	-	-	-	-	-	
F36	-	40	24	16	8	0	SB	MTSC	-	-	-	-	-	-	-	-	-	-	-	-	-	
F37	-	51	28	10	7.4	0	F	MTSCLS	-	-	-	-	-	-	-	3	-	-	-	-	-	
F38	-	150	150	20	47.1	0	F	MTSCLALC	-	-	-	31	11	8	6	68	2	-	1	-	-	Pipe stem fragment
F39	-	190	104	29	93.1	0	I	HTC/Le	-	1	0.08	1	-	1	-	5	-	-	-	-	-	
F40	-	26	18	18	6.3	0	DB	MTSC	-	-	-	-	-	-	-	-	-	-	-	-	-	Pipe bowl fragment
F41	-	48	52	16	26.4	18	S	MSTC	3	-	-	12	1	-	-	6	-	-	-	-	-	
F42	-	74	130	30	88.9	0	SB	MTSC	-	-	-	-	1	-	-	-	-	-	-	-	-	Pipe stem fragment
F43	-	192	200	8	112.5	0	I	MTSC/Le	-	-	-	6	-	2	-	15	2	-	-	-	-	
F44	-	45	34	15	12	0	B	MTSC	-	-	-	-	-	-	-	-	-	-	-	-	-	
F45	-	190	56	19	99.4	0	BB	MTSC/MTS	-	-	-	-	-	-	-	1	-	-	-	-	-	
F46	-	42	31	8	5.4	0	B	MTSC	-	-	-	-	-	-	-	-	-	-	-	-	-	

OUT OF HOUSE FEATURES

		Description							Contents															
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
F47	-	100	100	10	26.1	21	I	HSC/Le	47	20	0.56	-	-	-	2	6	7	6	-	-	-	
F48	-	80	80	10	33.5	0	B	MTSC	-	-	-	-	-	-	-	-	3	-	-	-	-	Large Biface
F49	-	220	110	35	253.4	36	SB	HTC/Le	113	37	1.16	10	-	4	3	34	3	32	1	-	-	
F50	-	118	43	11	29.2	0	B	MTSFC/MSTCHLe	-	-	-	-	-	-	-	-	-	-	-	-	-	
F51	-	230	40	20	96.3	0	SB	MTSC	-	-	-	-	-	-	-	-	1	-	-	-	-	
F52	-	132	80	16	88.4	0	B	Le	-	-	-	-	-	-	-	-	-	-	-	-	-	
F53	-	240	140	30	527.7	18	B	MTSAC/CT/Le	75	3	0.03	11	3	4	-	17	1	2	1	-	-	
F54	-	58	34	7	7.2	0	I	MSTC	-	-	-	-	-	-	-	-	-	-	-	-	-	
F55	-	130	80	7	38.1	0	I	MSTC	-	-	-	-	-	-	-	-	-	-	-	-	-	
F56	-	140	60	10	43.9	0	I	MTSCT	-	-	-	3	-	-	-	11	1	-	-	-	-	
F57	-	110	30	16	27.6	0	B	HTC	-	-	-	-	-	-	-	-	-	-	-	-	-	
F58	-	240	240	54	2296.5	0	S	MTSCLSLTC	-	-	-	33	10	16	6	116	12	-	1	1	-	1 point tip; 2 pipe bowl fragments
F59	-	39	28	12	6.8	0	B	MTSCA	-	-	-	-	-	-	-	-	-	-	-	-	-	
F60	-	116	92	19	106.1	21	SB	MTSCAF/Le	27	-	-	1	-	-	-	5	-	5	-	-	-	1 Biface fragment
F61	-	300	165	15	388.7	0	I	MTSC/MTSC/Le	-	-	-	3	-	-	-	-	1	-	1	-	-	

OUT OF HOUSE FEATURES

Description									Contents													
										Faunal		Pottery					Lithics					Other
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	f	w(g)	B	S	N	R	M	D	M	C	U	R	
F62	-	195	85	14	121.5	16	I	MTSCF/HSC/Le	0	-	-	-	-	-	-	2	-	-	-	-	-	Hammerstone
F-63	-	170	68	20	171.1	0	S	MTSCA	-	-	-	-	-	-	-	-	-	-	-	-	-	
F64	-	75	75	-	-	0	-	Le	-	-	-	-	-	-	-	-	-	-	-	-	-	
F65	-	140	45	5	-	0	-	Le	-	-	-	-	-	-	-	-	-	-	-	-	-	
F66	-	100	100	5	-	0	-	Le	-	-	-	-	-	-	-	-	-	-	-	-	-	
PM	-	-	-	-	-	-	-	-	1	-	-	6	-	1	-	6	4	10	3	-	-	
Gen	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	6	-	-	11	-	-	1 pipe Bowl fragment pipe stem fragment

HOUSE 1 FEATURES

		Description							Contents													
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal f	Faunal w(g)	Pottery B	Pottery S	Pottery N	Pottery R	Pottery M	Lithics D	Lithics M	Lithics C	Lithics U	Lithics R	Other
H1F1	-	55	45	9	11.6	0	B	MTS	-	0	-	-	-	-	-	-	-	-	-	-	-	
H1F2	-	96	85	20	85.4	64	SB	MTSC/MSC/MTC	195	203	3.11	1	-	2	-	-	5	-	1	1	-	
H1F3	-	89	46	18	31.2	0	DB	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F4	-	180	44	19	78.7	0	B	HSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F5	-	40	40	8	6.7	0	B	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F6	S	190	77	23	176.1	22	B	MSTC/MTC/MSC	800	0	-	-	-	-	-	-	-	-	-	-	-	
H1F7	-	40	40	10	6.2	0	B	MTSC	0	0	-	-	-	-	-	-	1	-	-	-	-	
H1F8	-	315	272	82	3858.1	38	B	MSTC/LS/LTCS LS/LTCS	13	15	3.07	7	1	3	3	12	12	22	1	1	-	2 pipe bowl fragments
H1F9	H	155	75	15	91.3	17	B	MFTSCA	26	225	2.92	-	-	-	-	6	-	8	1	-	-	
H1F10	A	30	30	15	9.4	16	B	MATF	7	205	2.75	-	-	-	-	-	-	3	-	-	-	
H1F11	-	43	33	20	14.8	15	B	MTSC	14	66	2.15	-	-	-	-	-	1	4	-	-	-	
H1F12	-	52	52	24	33.9	0	B	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F13	-	50	50	23	30.1	0	B	HSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F14	-	64	20	17	9	0	SB	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F15	-	55	29	15	12.5	0	B	HSC	0	0	-	-	-	-	-	-	-	-	-	-	-	

HOUSE 1 FEATURES

		Description							Contents													
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H1F16	H	75	70	12	36.2	1	B	MFSAC	11	0	–	–	–	–	–	–	1	–	–	–	–	
H1F17	A	20	20	20	6.2	6	B	MAFC	9	7	.42	–	–	–	–	–	–	1	–	–	–	
H1F18	–	38	38	39	26	16	B	HSC	91	0	–	–	–	–	–	–	–	–	–	–	–	
H1F19	–	50	40	24	27.5	17	F	MTSACF	154	231	5.79	9	1	–	2	32	4	7	–	–	–	Pipe bowl fragment
H1F20	–	50	25	11	9.1	0	F	MSTC	0	4	0.42	–	1	–	–	–	–	–	–	–	–	
H1F21	P	60	40	11	18.8	16	S	MSCFA	9	23	0.36	–	–	–	–	–	–	2	–	–	–	
H1F22	–	40	20	22	45.8	10	B	MSCF	41	71	1.79	1	–	–	1	10	4	3	–	1	1	
H1F23	A	60	56	30	149.6	36	S	MACF/MTF/MST	13	334	14.90	1	–	–	–	4	1	13	–	–	–	Bear canine pendant, pipe bowl fragment
H1F24	A	58	52	20	27.4	21	SB	MATSCF	56	200	3.08	1	–	–	3	23	1	5	–	–	–	
H1F25	–	34	30	31	22.6	17	B	MTSCLA	24	110	1.34	–	–	1	–	–	4	19	–	–	–	
H1F26	–	34	32	20	14.1	0	S	HTC/MSTC	0	0	0	1	–	1	–	–	–	–	–	–	–	
H1F27	H	70	40	5	10.9	15	I	MFCA/LF	61	154	3.00	–	–	–	–	–	–	1	–	–	–	
H1F28	–	45	28	13	6.9	4	SB	MFSC	0	11	0.33	–	–	–	–	–	–	–	–	–	–	
H1F29	A	20	20	12	4	9	B	MAFC	14	390	7.5	–	–	–	–	–	1	7	–	–	–	Bone Awl
H1F30	A	30	30	24	9	10	S	MACFS	23	380	7.5	–	–	–	–	–	–	–	–	–	–	

HOUSE 1 FEATURES

Provenience	Interpretation	Description Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Contents Floral (f)	Faunal f	 w(g)	Pottery B	 S	 N	 R	 M	Lithics D	 M	 C	 U	 R	Other
H1F31	H	60	50	12	9.4	0	B	MFACS	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F32	A	46	43	32	31	16	B	MSACFLA/HAC/HTC	22	688	13.31	-	-	-	-	-	3	9	-	-	-	
H1F33	-	56	56	20	32.8	0	B	MTSC	0	6	0.10	-	-	1	-	-	-	-	-	-	-	
H1F34	-	46	30	16	6.2	0	SB	MSAC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F35	A	59	30	14	14.9	15	F	MACFLALF	3	202	4.20	-	1	-	-	-	1	4	-	-	-	
H1F36	S	94	90	25	110.7	21	B	MTSC/MTCALA/HS	35	136	2.86	1	1	-	-	-	1	5	-	-	-	
H1F37	-	90	84	25	76.2	0	F	HSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F38	S	78	67	34	122.4	0	F	HSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F39	-	146	45	26	89.4	0	SB	HTSC/MTSC/HSC	0	0	-	-	-	-	-	-	-	-	1	-	-	
H1F40	P	22	18	13	4	0	F	MSAC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F41	-	30	30	13	6.1	0	B	HSC	0	0	-	1	-	-	-	-	-	-	-	-	-	
H1F42	P	30	21	10	6.5	11	F	MTCF	2	7	0.09	1	-	-	-	-	3	-	-	-	-	
H1F43	-	43	23	30	15.5	10	B	HSC	0	2	0.03	1	-	-	-	-	1	-	2	-	-	
H1F44	-	50	50	13	13	0	F	HTC	0	0	-	1	-	1	2	3	-	-	-	-	-	
H1F45	-	50	38	32	22.6	0	B	MTSFAC	0	0	-	-	-	-	-	2	3	-	-	-	-	

HOUSE 1 FEATURES

		Description							Contents												
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H1F46	-	56	44	15	26.4	0	B	MSAC	0	0	-	-	-	-	-	-	-	-	-	-	-	Pipe stem fragments
H1F47	A	53	36	36	32	0	S	MAF/HA	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F48	P	56	42	10	19.2	0	F	MSTC	0	1	1.21	-	-	-	-	4	1	-	-	-	-	Bone awl
H1F49	-	52	40	15	21.5	0	F	HTC	0	1	0.30	1	-	-	-	-	-	-	-	-	-	
H1F50	-	60	45	5	10.6	0	F	MSTC	0	0	-	-	-	-	-	1	-	-	-	-	-	
H1F51	-	45	35	18	14.8	0	B	MSTC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F52	-	45	45	10	13.5	0	F	MSTC	0	4	0.80	-	-	-	-	-	-	-	-	-	-	
H1F53	A	55	55	26	43.9	20	S	MAFC/HTC	2	365	10.51	1	-	-	-	-	2	7	-	-	-	Shell bead
H1F54	-	40	32	10	15.9	0	S	MSTC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F55	A	60	60	11	20.7	0	B	MASC	0	11	7.01	5	-	2	1	-	-	-	-	-	-	
H1F56	-	60	50	16	25.5	0	S	MTS	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F57	-	40	26	14	7	0	S	MST	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F58	-	40	29	7	8.5	0	F	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F59	P	90	58	14	38.2	0	F	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F60	A	76	54	24	62.2	0	B	MTSC/HAF	0	3	1.04	-	-	-	-	-	2	-	-	-	-	Pipe bowl fragment. Pipe stem fragment.

HOUSE 1 FEATURES

	Description								Contents														
										Faunal		Pottery					Lithics					
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	f	w(g)	B	S	N	R	M	D	M	C	U	R	Other
H1F61	A	30	26	24	13.7	0	S	MATSC/HAC	0	0	–	–	–	–	–	1	–	–	–	–	–	
H1F62	A	48	40	14	18.6	0	S	MTSACLA/HAC	0	3	0.10	2	–	–	–	2	–	–	–	–	–	
H1F63	–	44	38	9	10.7	0	S	HTC	0	0	–	–	–	–	–	–	–	–	–	–	–	
H1F64	H	105	76	8	52.5	0	B	MFAC	0	0	–	–	–	–	–	–	–	–	–	–	–	
H1F65	A	24	24	9	2.7	0	B	MATC	0	0	–	–	–	–	–	–	–	–	–	–	–	
H1F66	A	30	30	9	4.2	0	S	MALF	0	0	–	–	–	–	–	–	–	–	–	–	–	
H1F67	A	54	54	28	42.7	0	B	HACF/HSA	3	5	1.36	2	–	–	–	3	1	–	–	–	–	
H1F68	–	140	61	20	144.8	0	F	MTSC	0	0	–	–	–	–	–	–	–	–	–	–	–	
H1F69	A	23	23	5	1.9	0	F	HAC	0	1	0.19	–	–	–	–	–	–	–	–	–	–	
H1F70	–	50	37	20	19.3	0	F	MTS	0	0	–	–	–	–	–	–	–	–	–	–	–	
H1F71	–	30	26	15	6.1	0	B	MTSC	0	2	0.13	–	–	2	–	3	1	–	–	–	–	
H1F72	A	85	72	17	72.4	36	S	MASF/HSC	2	1	0.35	–	1	–	1	–	–	–	–	–	–	
H1F73	–	56	30	10	10.7	0	SB	HTC	0	1	0.17	–	–	–	–	1	–	–	–	–	–	
H1F74	–	45	45	7	7.4	0	B	HSC	0	0	–	–	–	–	–	–	–	–	–	–	–	
H1F75	H	75	65	10	36.6	0	F	MFSC	0	0	–	–	–	–	–	–	–	–	–	–	–	

HOUSE 1 FEATURES

		Description							Contents												
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H1F76	-	54	38	10	10.7	0	B	MTSACF/LA	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F77	H	96	88	10	40.2	17	B	MFTSLA	1	60	0.50	-	-	-	-	-	-	-	-	-	-	
H1F78	A	50	23	12	7.2	10	B	MAFC	0	69	0.88	-	-	-	-	-	-	-	-	-	-	
H1F79	-	79	50	20	44.4	0	SB	MSTC	0	1	0.03	2	-	-	1	-	-	-	-	-	-	
H1F80	A	55	42	14	15.4	0	B	MASCF	0	0	-	-	-	-	-	-	3	-	-	-	-	
H1F81	-	40	35	20	13.4	0	B	MSTC	0	2	0.13	-	-	-	-	-	2	-	-	-	-	
H1F82	-	32	18	16	4.8	0	B	MSTC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1F83	P	96	30	15	8.5	0	F	HSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H1PM	-	-	-	-	-	26	-	-	12	3	0.41	6	-	4	-	4	12	4	-	-	-	2 celts, pipe bowl fragment
H1S	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	1	-	1	-	-	Abrader, anvilstone, cut and ground phyllite implement; chlorite schist "saw" (see misc. chipped stone)

HOUSE 2 FEATURES

		Description							Contents													
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H2F1	–	86	61	37	83.3	0	SB	MTSC	–	0	–	2	–	–	–	–	–	–	–	–	–	Pipe bowl fragment
H2F2	–	76	43	19	43.8	0	S	MTSC	–	4	0.99	4	–	3	–	27	–	–	–	–	–	
H2F3	P	70	38	5	16.7	0	F	MSTC	–	–	–	–	–	–	–	–	1	–	–	–	–	
H2F4	P	58	34	10	24.2	0	I	MTSC	–	–	–	–	–	–	–	–	–	–	–	–	–	
H2F5	–	28	28	12	4.9	0	SB	MTSC	–	–	–	–	–	–	–	–	–	–	–	–	–	
H2F6	–	70	55	19	38.9	0	SB	HTC	–	–	–	–	–	–	–	–	–	–	–	–	–	
H2F7	P	50	30	15	16.1	0	B	MTSC	–	–	–	2	–	1	–	–	1	–	–	–	–	
H2F8	–	76	38	12	18.1	0	I	MTSC/MTS	–	–	–	–	–	–	–	–	1	–	–	–	–	2 frags. fired ceramic waste
H2F9	–	51	40	23	25.7	0	B	MTSC/HAT	–	–	–	2	–	–	–	1	2	–	–	–	–	Pipe bowl fragment
H2F10	P	62	44	15	21.4	10	B	HTC/MTSC	5	129	1.86	2	–	1	1	103	8	–	1	–	–	
H2F11	–	26	22	12	4.2	0	S	MTSC	–	0	–	–	–	–	–	–	–	–	–	–	–	
H2F12	A	60	60	23	41.2	29	SB	HACF/MTC	79	720	13.74	–	–	–	1	–	12	8	–	–	–	
H2F13	–	35	35	14	9.8	19	B	HTC	23	98	0.86	–	–	2	–	–	–	–	–	–	–	
H2F14	–	60	60	7	18.1	0	SB	MTCF	–	–	–	–	–	–	–	–	–	–	–	–	–	
H2F15	–	50	40	8	8.3	0	SB	MTSC	–	–	–	–	–	–	–	–	–	–	–	–	–	

HOUSE 2 FEATURES

Provenience	Interpretation	Description				Float Vol. (L)	Profile	Fill	Contents													
		Length (cm)	Width (cm)	Depth (cm)	Volume (L)				Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H2F16	-	69	60	10	28.4	0	F	MTSC	-	6	0.90	-	-	-	-	-	1	-	-	-	-	
H2F17	A	48	40	20	22.5	24	Be	MATLF	23	453	5.66	1	-	-	-	6	1	16	-	-	-	
H2F18	A	56	52	20	29	24	F	MACF	2	822	10.66	-	-	-	1	-	-	10	-	-	-	
H2F19	A	60	56	16	25	18	SB	HACLF	9	469	8.17	1	-	-	1	-	2	21	-	-	-	Pipe bowl fragment
H2F20	H	63	54	10	32	0	SB	MSTC/MFSAC	-	-	-	-	-	-	-	-	1	-	-	-	-	
H2F21	A	28	28	7	2.8	0	B	HAC	-	2	1.50	-	-	-	-	-	-	-	-	-	1	Cylindrical Antler Awl (?) fragment.
H2F22	-	43	40	26	31.1	0	S	MTSCA	-	0	-	1	-	-	-	-	-	-	-	-	-	
H2F23	-	24	24	19	8.2	0	S	MTSCA	-	8	0.91	-	-	-	-	-	-	-	-	-	-	
H2F24	P	41	32	7	4.8	0	B	HTC/MTAC	-	0	-	-	-	-	-	-	-	-	-	-	-	
H2F25	P	35	35	5	3.2	0	B	HTC	-	0	-	-	-	-	-	-	-	-	-	-	-	
H2F26	A	24	24	16	4.8	0	B	MATC	5	2	0.16	-	-	-	-	-	1	-	-	-	-	
H2F27	-	47	37	18	16.3	0	F	MTSC	-	5	2.99	-	-	-	-	4	-	-	-	-	-	
H2F28	A	43	43	22	21.2	0	B	MASC	-	0	-	-	-	-	-	-	-	-	-	-	-	
H2F29	A	26	26	15	4.9	23	B	MASCF	34	138	5.42	-	-	-	-	-	-	-	-	-	-	
H2F30	S	164	115	111	154.1	0	F	MTC/MTSC	-	0	-	-	-	-	-	-	-	-	-	-	-	

HOUSE 2 FEATURES

Provenience	Interpretation	Description				Float Vol. (L)	Profile	Fill	Contents													
		Length (cm)	Width (cm)	Depth (cm)	Volume (L)				Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H2F31	-	45	32	33	24.8	0	SB	MTSC	-	2	0.12	-	-	-	-	1	3	-	-	-	-	1 piece fired ceramic waste
H2F32	-	25	25	12	4.4	0	F	MSTC	-	0	-	-	-	-	-	-	-	-	-	-	-	
H2F33	S	214	137	40	862.1	66	F	MSTCF/MTSC MTSC*/HS/HT	752	14	1.03	12	-	2	3	16	9	-	1	-	-	Anvil stone; Pipe bowl frag. Complete trumpet pipe.
H2F34	-	50	32	21	23.8	0	F	MTSCA	-	0	-	1	-	-	-	-	-	-	-	-	-	
H2F35	A	62	42	25	34	40	B	MATC	25	207	8.42	20	3	4	2	28	5	6	-	-	-	1 piece fired ceramic waste bone awl
H2F36	-	45	33	42	24.6	0	B	MTCA	-	0	-	-	-	-	-	-	-	-	-	-	-	Anvil stone
H2F37	A	27	27	25	9.6	23	S	HAC	20	927	25.04	3	1	2	9	-	-	-	-	-	-	1 biface frag. 1 bone bead frag.
H2F38	A	72	40	20	34.8	21	SB	MAT	29	608	17.07	1	-	-	-	-	1	4	-	-	-	Pipe stem fragment.
H2F39	-	51	40	20	28.4	15	S	MTSC	11	277	5.76	1	-	-	-	35	-	-	1	-	-	
H2F40	A	42	42	22	24.6	21	S	MATSCF	55	176	4.37	2	-	-	-	-	3	-	-	-	-	
H2F41	-	62	50	24	52.0	25	F	HTLC	148	360	13.57	7	-	-	2	23	4	12	-	-	-	
H2F42	-	31	31	15	7.5	0	B	MTSC	0	1	0.26	1	-	-	-	-	-	-	-	-	-	
H2F43	A	52	44	14	24.2	0	S	MATF/MTA	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F44	-	78	58	16	51.2	21	DB	MTCA	112	357	7.23	2	1	1	2	15	1	41	-	-	-	

HOUSE 2 FEATURES

Provenience	Interpretation	Description Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Contents Floral (f)	Faunal f	 w(g)	Pottery B	 S	 N	 R	 M	Lithics D	 M	 C	 U	 R	Other
H2P45	A	84	60	22	78	18	S	HAC	194	869	21.50	17	1	8	1	51	2	54	-	-	-	2 bone bead frags. 1 pipe bowl frag.
H2P46	A	36	36	20	16	22	SB	HAC	63	574	13.44	-	-	-	-	10	-	15	-	-	-	Pipe bowl fragment
H2P47	A	16	16	17	2.2	0	B	HAC	0	0	-	1	-	-	-	-	-	-	-	-	-	
H2P48	A	28	28	12	4.9	0	B	HAC	0	0	-	-	-	-	-	-	1	-	-	-	-	
H2P49	-	76	60	11	39.3	0	S	MTAC	0	4	0.41	3	-	-	-	-	-	-	-	-	-	
H2F50	-	50	50	18	23.5	20	SB	MTAC	34	18	0.19	-	-	3	-	-	3	-	-	-	-	
H2F51	-	40	40	23	19.2	0	B	MTSC	0	0	-	2	-	-	-	-	-	-	-	-	-	
H2F52	S	157	97	34	271.1	0	F	MTCF	0	0	-	2	-	-	-	3	3	-	-	-	-	Hammerstone, pipe bowl frag.
H2F53	S	180	155	38	506.7	0	S	MTSC/HTC	0	3	3.71	5	2	3	-	-	8	-	-	-	3	Bone awl
H2F54	P	33	33	20	25.6	0	S	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F55	-	80	62	22	88.2	24	F	MTSC	35	203	3.00	-	-	-	-	-	-	-	-	-	-	
H2F56	-	42	25	18	8.7	13	SB	MTAC	99	200	3.54	-	-	-	-	-	1	10	-	-	-	
H2F57	A	22	22	22	36.2	16	Be	HA/MAT	35	130	1.40	-	-	-	-	-	2	6	-	1	-	1 scraper fragment
H2F58	A	80	60	45	113.1	0	S	MTAC/HAF	0	1	0.12	3	2	-	2	1	5	-	-	-	-	
H2F59	-	90	20	26	26.3	0	F	MTSC	0	0	-	-	2	1	-	7	-	-	-	-	-	

HOUSE 2 FEATURES

		Description							Contents													
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H2F60	A	30	30	33	23.3	20	S	MTCAS/MAFS/MACS	74	299	5.23	8	2	2	3	14	13	1	-	-	-	
H2F61	A	43	43	33	31.9	19	B	MAFCS	80	581	12.71	1	-	4	1	11	4	12	-	-	-	
H2F62	-	51	95	15	57.1	0	S	HTC	0	40	3.09	1	-	1	-	8	1	-	-	-	-	
H2F63	S	460	145	65	2532.6	41	F	HTGT/MSTC/HTCT	21	10	2.10	45	-	5	10	37	30	-	4	2	1	1 piece fired ceramic waste; 2 scrapers; 1 celt; mano, beaver incisor chisel; 3 pipe bowl fragments.
H2F64	P	43	21	22	8.9	0	S	HSC	0	0	-	-	-	-	-	2	-	2	-	-	-	
H2F65	-	55	55	15	23.7	6	B	MSACFLAS	0	21	1.55	-	-	-	-	-	-	-	-	-	-	
H2F66	A	28	23	7	2.3	0	B	MASCF	0	1	0.30	-	-	-	-	-	-	-	-	-	-	
H2F67	A	48	48	47	85.0	38	S	MATC	17	117	3.79	2	-	1	1	5	2	2	-	-	-	1 point, 2 pipe frags. 2 red ochre nodules, beaver incisor chisel
H2F68	P	53	30	20	15.5	18	S	MSAC	18	396	5.58	2	-	-	-	-	1	6	-	-	-	
H2F69	B	42	40	38	50.1	18	S	MTC/MFS/HAC	35	84	2.70	3	-	2	1	-	2	4	-	-	-	
H2F70	-	55	55	12	19.0	0	SB	MTSC	0	0	-	1	-	-	-	4	2	-	-	-	-	
H2F71	-	18	18	5	5.0	0	B	HTC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F72	-	65	47	22	35.1	17	F	HSMAC	84	602	11.00	8	1	2	-	11	-	-	-	-	-	

HOUSE 2 FEATURES

Provenience	Interpretation	Description				Float Vol. (L)	Profile	Fill	Contents													
		Length (cm)	Width (cm)	Depth (cm)	Volume (L)				Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H2F73	-	50	40	14	16.7	0	S	HSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F74	P	55	40	9	25.8	0	S	MSCF	0	0	-	4	-	-	1	9	1	6	-	-	1	
H2F75	-	53	31	20	17.2	0	F	MSCF	0	0	-	-	-	-	2	6	1	-	-	-	-	
H2F76	-	50	40	8	10.2	5	B	HSC	0	46	0.56	26	1	14	7	142	-	-	-	-	-	1 scraper
H2F77	A	84	84	25	138.5	33	Be	MTSC/MAFSLAF/HTC	95	334	10.32	2	-	1	1	11	1	5	-	-	-	Pipe bowl fragment
H2F78	P	50	38	16	18.6	0	S	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F79	-	63	53	23	40.2	0	R	MTSCFA	0	11	1.43	3	-	-	1	3	1	-	-	1	-	
H2F80	A	39	30	30	27.5	17	S	MASCF	42	588	12.10	1	-	-	-	17	3	-	-	-	-	Beaver incisor chisel
H2F81	A	49	41	15	13.6	9	SB	MATSC	16	87	2.77	-	-	-	-	1	-	-	-	-	-	
H2F82	A	20	20	10	3.1	0	B	MAF	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F83	P	46	46	23	25.4	0	B	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F84	-	40	30	20	12.5	0	S	MSTC	0	17	2.01	-	-	-	-	-	1	-	-	-	-	
H2F85	A	33	33	13	7.4	0	B	MACFLA	0	0	-	-	-	-	1	-	1	-	-	-	-	
H2F86	S	215	150	64	500	13	F	MSC	36	7	0.10	6	-	4	1	29	1	3	-	-	-	Pipe stem fragment.
H2F87	P	49	44	10	16.9	14	F	MSACF	60	125	1.71	5	-	-	-	-	-	6	-	-	-	Pipe bowl frag., Pipe stem fragment.

HOUSE 2 FEATURES

		Description							Contents														
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H2F88	H	85	60	5	20	0	I	HFS	0	0	-	-	-	-	-	-	-	-	-	-	-	Hammerstone
H2F89	A	34	20	6	3.2	0	S	HA	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F90	-	22	22	10	3.8	0	S	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F91	A	53	53	22	48.5	27	DB	MACT/MATC	159	454	16.62	7	1	2	1	27	6	22	1	-	-	Cup and pin deer phalange
H2F92	A	60	46	40	78	18	S	MACF	136	128	3.10	-	2	-	-	-	-	14	-	-	-	Pipe stem fragment.
H2F93	A	40	33	20	20.7	0	B	HF/HAF	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F94	-	74	36	14	29.2	0	F	MSTC	0	1	0.50	5	-	-	1	5	-	-	-	-	-	
H2F95	-	50	46	8	9.6	0	B	MSTC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F96	-	66	30	16	16.3	0	F	MTSC	0	0	-	1	-	-	-	-	-	-	-	-	-	
H2F97	-	60	50	14	30.3	24	S	MTSHC	28	706	12.48	5	-	-	1	9	1	14	1	-	-	Pipe stem fragment.
H2F98	A	62	62	6	18	0	S	MATCF	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F99	A	50	50	35	68.7	0	S	MSTC/MATCS	0	6	0.80	1	-	-	-	-	3	-	-	-	-	
H2F100	-	22	22	8	3.0	0	B	MTSC	0	2	0.22	-	-	-	-	-	-	-	-	-	-	
H2F101	-	42	28	16	11.3	0	S	MTSC	0	0	-	-	-	-	-	2	1	-	-	-	-	
H2F102	A	54	46	18	35.1	20	F	MATSCF/MTSC	41	190	2.05	1	1	1	-	-	1	7	-	-	-	

HOUSE 2 FEATURES

		Description							Contents													
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H2F103	A	34	32	16	7.1	0	B	HAFC	0	1	0.03	-	-	-	-	2	-	-	-	-	-	
H2F104	-	36	36	7	6.5	0	S	MTSA	0	1	0.09	2	-	-	-	-	-	-	-	-	-	
H2F105	-	60	33	18	18.6	0	B	MTSC/MSTC	0	0	-	-	-	1	-	-	2	-	-	-	-	
H2F106	-	42	42	14	12.9	23	B	MSC	65	98	0.61	26	4	2	4	38	-	-	-	-	-	Drill, pipe bowl fragment.
H2F107	-	28	26	12	4.5	0	B	MTSA	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F108	-	30	28	13	8	0	S	HTS	0	0	-	1	-	-	-	2	2	-	-	-	-	
H2F109	-	50	27	8	8.4	0	S	MTSC	0	0	-	-	-	-	1	-	-	-	-	-	-	
H2F110	-	20	20	10	8.5	0	B	MSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F111	-	43	38	14	15.8	0	F	MTAFC/MTSC	0	1	3.86	-	-	1	-	-	-	-	-	-	-	
H2F112	-	43	36	5	4.7	0	B	MTSC	0	1	0.35	2	-	-	-	3	2	-	-	-	-	
H2F113	-	44	29	40	40	18	Be	MSTC	24	175	1.81	-	-	-	-	5	-	6	-	-	-	
H2F114	-	64	62	22	34.1	0	B	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F115	A	53	56	16	49.8	0	SB	MACF	0	5	1.47	-	-	-	-	-	-	-	-	-	-	
H2F116	A	40	40	11	8.7	0	B	MASF	0	40	4.40	8	-	2	2	14	-	-	-	-	-	
H2F117	A	60	54	26	93.9	64	B	MTSC/MATC/HAC	3996	2163	84.34	12	4	12	2	50	1	16	1	-	-	1 hammerstone, 4 pieces fired ceramic waste, 5 kg. ceramic tempering material

HOUSE 2 FEATURES

		Description							Contents													
Provenience	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Floral (f)	Faunal		Pottery					Lithics					Other
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H2F118	-	55	50	33	43.7	0	B	MSTCLS	0	9	0.70	9	1	5	4	10	-	-	-	-	-	
H2F119	A	56	48	12	16.2	0	B	MASTCP	1	1	0.10	-	-	-	-	-	-	-	-	-	-	
H2F120	H	105	40	8	17.5	0	I	HFACS	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F121	-	40	38	12	14.3	17	F	MTSC	40	126	2.67	1	-	-	-	3	3	-	-	-	-	
H2F122	A	34	34	12	10.8	0	S	MASC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F123	-	45	25	6	4.2	0	F	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F124	-	70	40	20	29.3	0	I	MSCP	0	0	-	-	1	-	-	-	-	-	-	-	-	
H2F125	-	25	25	12	3.9	0	I	MSHC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F126	-	40	40	20	19.3	0	F	MTSCP	0	3	1.52	-	-	-	-	-	3	-	-	-	-	Worked bone "groove and splinter" waste
H2F127	-	56	46	10	15	0	B	MTSC	0	0	-	-	-	-	-	6	-	-	-	-	-	
H2F128	A	40	40	22	24.3	19	S	MASCP	28	293	4.05	-	-	-	-	-	-	2	-	-	-	
H2F129	A	65	65	13	39.9	0	SB	MTAC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F130	-	72	72	18	48.8	0	B	MSTC	0	1	0.39	-	-	-	-	-	-	-	-	-	-	
H2F131	-	48	30	13.	9.8	0	B	MSC	0	2	0.17	-	-	-	-	1	-	-	-	-	-	

HOUSE 2 FEATURES

Provenience	Interpretation	Description				Float Vol. (L)	Profile	Fill	Contents													Other
		Length (cm)	Width (cm)	Depth (cm)	Volume (L)				Floral (f)	Faunal		Pottery					Lithics					
										f	w(g)	B	S	N	R	M	D	M	C	U	R	
H2F132	S	94	82	27	131.1	21	F	MSTC	14	61	2.18	2	-	-	-	2	1	1	-	-	-	
H2F133	S	155	60	23	119.1	0	B	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F134	-	46	42	6	7.1	0	F	MTSC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F135	-	28	18	18	7.1	0	S	MTC	0	0	-	-	-	-	-	-	-	-	-	-	1	
H2F136	A	59	41	10	12.6	0	DB	MASC	0	0	-	-	-	-	-	-	-	-	-	-	-	
H2F137	A	73	43	32	70.7	0	F	MTACLA	0	0	1.25	5	2	5	3	37	1	-	-	-	-	Pipe bowl fragment.
H2PM	-	-	-	-	-	38	-	-	68	391	20.32	47	5	7	5	43	16	4	3	-	1	Biface frag. bone awl 2 pipe stem frags.
SURFACE		-	-	-	-	-	-	-	-	1	-	4	1	0	3	66	1	-	19	-	-	

MIDDENS

Provenience	Interpretation	Description: Length (cm)	Description: Width (cm)	Description: Depth (cm)	Description: Volume (L)	Float Vol. (L)	Profile	Fill	Contents: Faunal		Pottery					Lithics					Other
									f	w(g)	B	S	N	R	M	D	M	C	U	R	
A	M	630	300	8	-	-	PZ	-	-	-	7	-	-	2	53	5	-	-	-	1	5 pipe bowl frags., pipe stem frag.
BS	M	-	-	-	-	-	-	-	-	-	2	-	1	2	7	1	-	1	-	-	3 pipe stem fragments.
CS	M	-	-	-	-	-	-	-	-	-		-	-	1	3	3	-	2	-	-	Pipe bowl fragment.
DS	M	-	-	-	-	-	-	-	-	-	2	-	-	2	6	4	-	1	1	2	Celt. 2 pipe bowl frags., 2 pipe stem fragments.
E	M	[100	100	±25	250]/sq.	-	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	
ES	-	-	-	-	-	-	-	-	-	-	1	2	4	2	11	1	-	1	-	-	Anvil stone, Abrader
21S15W	-	-	-	-	-	-	-	-	2	0.18	1	-	1	1	38	8	-	1	1	-	pipe bowl frag. pipe stem frag.
21S19W	-	-	-	-	-	-	-	-	1	0.67	2	-	-	-	8	5	-	-	-	1	
22S15W	-	-	-	-	-	-	-	-	3	0.74	1	-	1	-	35	10	-	1	-	1	Bone awl, 2 pipe bowl frags
23S15W	-	-	-	-	-	-	-	-	-	-	1	-	1	-	42	6	-	1	-	-	pipe bowl frag., pipe stem frag.
24S15W	-	-	-	-	-	-	-	-	6	3.02	1	-	2	3	59	-	-	-	-	-	
25S14W	-	-	-	-	-	-	-	-	2	0.21	2	2	-	-	26	5	-	2	-	-	
25S15W	-	-	-	-	-	-	-	-	10	3.05	1	-	-	3	73	15	-	2	-	1	pipe stem fragment.

MIDDENS

Provenience	Interpretation	Description				Float Vol. (L)	Profile	Fill	Contents												
		Length (cm)	Width (cm)	Depth (cm)	Volume (L)				Faunal		Pottery					Lithics					Other
									f	w(g)	B	S	N	R	M	D	M	C	U	R	
25S16W	-	-	-	-	-	-	-	-	2	1.04	3	-	1	2	47	6	-	2	-	-	2 pipe bowl frags., pipe stem frags.
25S17W	-	-	-	-	-	-	-	-	2	2.50	4	1	1	-	48	6	-	3	1	-	
26S13W	-	-	-	-	-	-	-	-	9	1.44	2	-	2	2	34	9	-	1	1	-	pipe bowl frag. pipe stem frag.
26S14W	-	-	-	-	-	72	-	-	111	6.46	1	-	2	2	137	15	33	2	-	-	Bone bead frag. 3 pipe stem frags. cup & pin deer phalange, pipe bowl frag.
26S15W	-	-	-	-	-	-	-	-	13	2.70	5	1	-	2	72	13	-	2	-	-	Pipe stem fragment
26S16W	-	-	-	-	-	-	-	-	7	0.69	7	-	2	3	86	3	-	3	2	-	1 Celt, 6 pipe bowl frags.
26S17W	-	-	-	-	-	-	-	-	10	1.87	1	1	6	-	41	5	-	2	-	-	2 pipe bowl fragments.
27W13W	-	-	-	-	-	-	-	-	3	2.37	4	-	-	2	26	6	-	1	-	-	pipe stem fragment.
27S14W	-	-	-	-	-	-	-	-	5	1.60	3	-	-	-	24	14	-	2	2	-	pipe bowl frag. 3 pipe stem fragments.
27S15W	-	-	-	-	-	72	-	-	106	5.52	3	1	-	1	176	8	27	1	-	-	5 pipe bowl frags., pipe stem fragment.
27S16W	-	-	-	-	-	-	-	-	-	-	2	2	1	-	9	12	-	1	-	-	3 pipe bowl frags., 3 pipe stem fragments.
27S17W	-	-	-	-	-	86	-	-	134	8.16	14	-	1	2	161	23	37	2	3	-	Bone Awl, 4 pipe stem frags

MIDDENS

Provenience	Description								Contents													
	Interpretation	Length (cm)	Width (cm)	Depth (cm)	Volume (L)	Float Vol. (L)	Profile	Fill	Faunal		Pottery					Lithics					Other
									f	w(g)	B	S	N	R	M	D	M	C	U	R	
28S13W	-	-	-	-	-	-	-	-	3	0.55	6	-	1	1	45	7	-	2	-	-	Celt frag? Point tip. Pipe bowl fragment.
28S14W	-	-	-	-	-	-	-	-	5	4.26	1	-	-	1	52	6	-	2	1	-	Biface frag., pipe bowl frag. 2 pipe stem fragments
28S15W	-	-	-	-	-	-	-	-	6	1.66	4	-	1	1	67	3	-	1	2	-	Pipe bowl fragment
28S16W	-	-	-	-	-	-	-	-	8	2.31	10	-	4	3	101	15	-	2	1	-	Biface frag., pipe bowl frag. Pipe stem fragment
28S17W	-	-	-	-	-	-	-	-	1	0.10	-	2	1	2	74	7	-	5	1	-	scraper, pipe bowl frag. pipe stem fragment
29S15W	-	-	-	-	-	84	-	-	133	3.97	4	2	-	-	182	9	27	3	-	-	Pipe bowl fragment.
29S16W	-	-	-	-	-	-	-	-	6	1.39	5	-	-	-	31	15	-	2	1	3	3 pipe bowl fragments.
30S15W	-	-	-	-	-	-	-	-	12	2.75	-	-	3	-	73	9	-	2	-	-	2 pipe bowl fragments. Pipe stem fragments.
30S17W	-	-	-	-	-	-	-	-	5	0.96	-	-	-	3	60	6	-	1	-	-	Pipe bowl fragment. Pipe stem fragment.
General Site Surface			-	-	-	-	-	-	-	-	2	1	-	3	-	1	-	2	1	1	Projectile point, Celt, pipe bowl fragments.

APPENDIX B

Wiacek Site Floral Remains

Key to Table

Provenience

As outlined in text under section entitled Excavation Data Recovery and Provenience Designations

Recovery Technique

S - 1/4" (6 mm) Screen Mesh

L - Light Flotation Fraction

H - Heavy Flotation Fraction

Frequency

Frequency of Identifications per Feature

Volume

Litres

PROVENIENCE	RECOVERY TECH.	KERNEL	KERNEL FRAG	EMBRYO	COB FRAG.	CUPULE	BEAN	SQUASH	SUNFLOWER	TOBACCO	BUTTERNUT	ACORN	HICKORY	PIN CHERRY	CHOKE CHERRY	WILD PLUM	HAWTHORN	HACKBERRY	DOGWOOD	PRICKLY ASH	RASPBERRY	ELDERBERRY	STRAWBERRY	SUMAC	SPIKENARD	BELLWORT	GRASS	STEM OR STALK	PLANT FRAG.	UNKNOWN	UNIDENT.	EST. FEA. VOL.	FLOTATION SAMPLE VOL.	% OF FEATURE FLOATED
F10	L	-	3	-	-	2	-	-	-	4	-	2	-	1	-	-	-	-	-	-	106	67	-	-	5	-	-	-	-	2	-	366.3	87	23.7
	H	-	4	-	-	3	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
F12	L	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	2	-	-	-	-	-	1	-	16.1	19	100
	H	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
F13	L	-	4	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	4	14	-	1	-	-	-	16	-	1	9	642.8	10	1.6
	H	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	8	-	-			
F15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.1	15	93
F16L1	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	95	30	40
	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	132	-	-			
F16L3	L	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
F21	L	-	4	-	-	5	-	-	1	1	-	-	-	-	-	-	-	-	-	-	1	-	-	4	-	-	-	7	7	-	-	70.7	21	29.7
	H	1	43	1	-	27	-	-	-	-	-	-	-	1	-	-	3	-	-	-	-	-	-	-	-	-	-	-	6	-	-			
F23	L	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	1	-	-	-	5	-	-	-	53.8	18	33
	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-			
F24L1	L	-	3	-	-	19	-	-	-	-	-	1	-	-	-	-	-	-	-	-	5	1	-	2	-	-	-	-	-	-	-	637.0	10	2.0
	H	-	6	1	-	27	-	-	-	-	4	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	6	-	-			
F25L1	L	-	8	1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	10	-	-	6	2	1	-	-	-	-	141.8	62	43.7
	H	-	10	-	-	6	-	-	-	-	4	-	-	-	1	-	-	-	-	-	-	-	-	-	-	3	-	37	20	-	-			
L2	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-			
F26&27	L	-	7	-	-	26	-	-	-	2	-	-	-	-	-	-	-	-	-	-	23	16	-	2	3	-	5	1	-	1	-	251.3	39	15.5
F26	H	-	11	-	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	3	4	-	-			
F33	L	-	7	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	49	-	-	6	1	-	-	5	1	-	140.9	37	26.3
	H	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-			
F41	L	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26.4	18	60.2
F47	L	-	4	-	-	3	-	-	-	-	-	-	1	-	-	-	-	-	-	-	4	11	-	-	1	-	-	-	-	-	-	26.1	21	80.5
	H	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	12	-	1			
F49	L	2	29	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	36	7	-	1	1	-	-	-	-	-	-	253.4	36	14.2
	H	1	34	-	-	1	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
F53	S	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	527.7	18	3.4
	L	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	46	-	1	5	3	3	-	-	-	-			
	H	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

PROVENIENCE	RECOVERY TECH.	KERNEL	KERNEL FRAG	EMBRYO	COB FRAG.	CUPULE	BEAN	SQUASH	SUNFLOWER	TOBACCO	BUTTERNUT	ACORN	HICKORY	PIN CHERRY	CHOKE CHERRY	WILD PLUM	HAWTHORN	HACKBERRY	DOGWOOD	PRICKLY ASH	RASPBERRY	ELDERBERRY	STRAWBERRY	SUMAC	SPIKENARD	BELLWORT	GRASS	STEM OR STALK	PLANT FRAG.	UNKNOWN	UNIDENT.	EST. FEA. VOL.	FLOTATION SAMPLE VOL.	% OF FEATURE FLOATED
F60	L	-	-	-	-	2	-	-	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	-	-	-	3	3	-	-	106.1	21	19.8
	M	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	7	-	1			
F62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	121.5	16	13.7
TOTAL	S	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	L	3	74	1	-	64	2	1	1	7	-	3	1	2	-	-	3	-	-	-	206	224	-	14	27	6	9	32	15	6	9			
	M	2	141	3	-	65	-	-	-	-	28	-	-	1	1	-	17	-	-	-	-	4	-	-	-	3	-	46	285	-	2	3493.0	494	14
TOTALS		6	215	4	-	129	2	1	1	7	28	3	1	3	1	-	20	-	-	-	206	228	-	14	27	9	9	78	228	6	11			

PROVENIENCE	RECOVERY TECH.	KERNEL	KERNEL FRAG	EMBRYO	COB FRAG.	CUPULE	BEAN	SQUASH	SUNFLOWER	TOBACCO	BUTTERNUT	ACORN	HICKORY	PIN CHERRY	CHOKE CHERRY	WILD PLUM	HAWTHORN	HACKBERRY	DOGWOOD	PRICKLY ASH	RASPBERRY	ELDERBERRY	STRAWBERRY	SUMAC	SPIKENARD	BELLWORT	GRASS	STEM OR STALK	PLANT FRAG.	UNKNOWN	UNIDENT.	EST. FEA. VOL.	FLOTATION SAMPLE VOL.	% OF FEATURE FLOATED
H 1F2L1&2	L	-	5	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	5	-	-	3	-	-	-	-	-	-	-	85.4	64	74.9
	H	-	7	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-			
L3	L	1	31	-	-	7	-	-	-	4	-	-	-	-	-	-	-	-	-	-	3	15	-	5	-	-	7	-	20	-	-			
	H	1	69	2	-	4	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-			
H 1F6	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	355	122	-	-	243	23	-	12	-	-	4	176.1	22	12.5
	H	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-			
E 1F8	S	7	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3050.1	38	1
	H	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H 1F9	L	-	8	-	-	2	-	-	-	3	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	91.3	17	18.6
	H	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	8	-	-			
H 1F10	H	-	2	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.4	16	100
H 1F11	L	1	5	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	14.8	15	100
	H	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H 1F16	L	1	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	36.2	1	2.7
H 1F17	L	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.2	6	100
	H	-	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H 1F18	L	-	11	-	-	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	26	16	61.5
H 1F19	L	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27.5	17	61.8
	H	-	6	-	-	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H 1F21	H	-	8	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.8	16	85.1
H 1F22	L	1	12	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	45.8	10	21.8
	H	-	19	1	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	1	-	-	-			
H 1F23	H	-	6	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1	149.6	36	24
L263	H	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H 1F24	S	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27.4	21	76.6
	L	2	9	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-			
	H	-	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	4	-	-			
H 1F25	L	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	4	-	-	-	-	-	-	-	22.6	17	75.2
	H	-	11	4	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

PROVENIENCE	RECOVERY TECH.	KERNEL	KERNEL FRAG	EMBRYO	COB FRAG.	CUPULE	BEAN	SQUASH	SUNFLOWER	TOBACCO	BUTTERNUT	ACORN	HICKORY	PIN CHERRY	CHOKE CHERRY	WILD PLUM	HAWTHORN	HACKBERRY	DOGWOOD	PRICKLY ASH	RASPBERRY	ELDERBERRY	STRAWBERRY	SUMAC	SPIKENARD	BELLWORT	GRASS	STEM OR STALK	PLANT FRAG.	UNKNOWN	UNIDENT.	EST. FEA. VOL.	FLOTATION SAMPLE VOL.	% OF FEATURE FLOATED
H1F27	H	-	9	4	-	2	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	-	-	10.9	15	100
H1F28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.9	4	50.0
H1F29	L	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	4	9	100
H1F30	H	-	12	2	-	6	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	9	10	100
H1F32	L	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	31.0	16	51.6
	H	-	14	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H1F35	H	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.9	15	100
H1F36	S	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110.7	21	19
	L	3	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-			
	H	-	9	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			
H1F42&43	H	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	21	95
H1F53	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	43.9	20	45.5
H1F67	S	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(42.7)	0	0
H1F72	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	72.4	36	50
H1F77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	40.2	17	42.3
H1F78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.2	19	100
H1PM18	S	1	7	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	L	-	1	-	-	2	-	-	-	3	-	-	-	-	-	-	-	-	-	-	2	14	-	-	-	-	1	-	-	-	-			
H1PM66	L	-	6	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-			
H1PM66	H	-	8	-	-	3	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
TOTAL	S	11	19	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	L	10	118	2	-	89	-	-	-	17	-	-	1	2	1	-	-	-	1	-	370	152	-	36	244	23	9	13	20	-	4			
	H	1	223	21	-	71	-	-	-	-	35	1	-	-	-	-	7	-	-	2	-	-	-	1	-	-	-	1	79	4	3	5011.0	506	10.1
TOTALS	-	22	360	23	-	160	-	-	-	17	40	1	1	2	1	-	7	-	1	2	370	152	-	37	244	23	9	14	99	4	7			

PROVENIENCE	RECOVERY TECH.	KERNEL	KERNEL FRAG	EMBRYO	COB FRAG.	CUPULE	BEAN	SQUASH	SUNFLOWER	TOBACCO	BUTTERNUT	ACORN	HICKORY	PIN CHERRY	CHOKE CHERRY	WILD PLUM	HAWTHORN	HACKBERRY	DOGWOOD	PRICKLY ASH	RASPBERRY	ELDERBERRY	STRAWBERRY	SUMAC	SPIKENARD	BELLWORT	GRASS	STEM OR STALK	PLANT FRAG.	UNKNOWN	UNIDENT.	EST. FEA. VOL.	FLOTATION SAMPLE VOL.	% OF FEATURE FLOATED
H2F10	H	-	3	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.4	10	46.7
H2F12	L	-	4	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	41.2	29	70.4
	H	-	11	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			
H2F13	L	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-	2	-	1	-	9.8	19	100
	H	-	12	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F17	L	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.5	24	100
	H	-	14	5	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F18	H	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	29	24	82.7
H2F19	L	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	18	72
	H	-	3	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F26	S	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	0	0
H2F29	H	-	9	-	-	-	-	-	-	-	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	23	100
	L	-	7	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	4	-	-	-			
H2F33	S	2	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	862.1	66	7.6
L1	L	1	7	-	-	15	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	6	-	1	-	-	-	4	-	-	-			
	H	-	14	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
L2A	L	1	93	1	4	145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	-	8	-	-	141	116	-	-	-			
	H	-	95	-	2	44	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	4	8	-	-			
L3	L	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	11	-	-	1	-			
	H	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F35	L	-	2	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	6	-	-	3	-	-	-	-	-	-	-	34.0	40	100
	H	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2			
H2F37	L	-	12	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	-	-	-	-	-	-	-	9.6	23	100
H2F38	L	-	5	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	3	-	-	-	-	-	-	-	-	-	34.8	21	60.3
	H	-	10	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-			
H2F39	L	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	7	-	-	-	-	-	-	-	28.4	15	52.8
H2F40	S	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	L	-	15	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	9	-	3	-	-	-	10	-	-	-	24.6	21	85.4
	H	-	9	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

/13417.225

PROVENIENCE	RECOVERY TECH.	KERNEL	KERNEL FRAG	EMBRYO	COB FRAG.	CUPULE	BEAN	SQUASH	SUNFLOWER	TOBACCO	BUTTERNUT	ACORN	HICKORY	PIN CHERRY	CHOKE CHERRY	WILD PLUM	HAWTHORN	HACKBERRY	DOGWOOD	PRICKLY ASH	RASPBERRY	ELDERBERRY	STRAWBERRY	SUMAC	SPIKENARD	BELLWORT	GRASS	STEM OR STALK	PLANT FRAG.	UNKNOWN	UNIDENT.	EST. FEA. VOL.	FLOTATION SAMPLE VOL.	% OF FEATURE FLOATED
M2F41	L	4	31	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	-	8	-	-	-	-	-	-	-	52.0	25	48
	M	-	25	-	2	60	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	2	-	-	-	-	2	-	-			
M2F44	L	1	17	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-	9	-	-	-	1	-	-	-	51.2	21	41
	M	-	46	1	-	6	-	-	-	-	21	-	3	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-			
M2F45	L	-	31	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	3	-	139	-	-	-	-	2	-	-	70.0	10	23
	M	-	6	4	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	1	-	-	-			
M2F46	L	-	9	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	4	-	4	-	-	16	22	100
	M	-	36	1	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
M2F50	L	1	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	3	-	-	-	7	4	-	-	23.5	20	85.1
	M	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
M2F55	L	-	9	-	-	-	-	1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-	88.2	24	27.2
	M	-	13	-	-	-	-	-	-	-	3	1	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
M2F56	L	-	19	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	13	8.7	13	100
	M	-	24	2	-	2	-	-	-	-	19	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	3	3	-	-			
M2F57	L	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	6	-	-	-	-	-	-	-	36.2	16	44.2
	M	-	10	2	-	3	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-			
M2F60	L	3	7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	1	-	17	-	-	-	-	-	-	-	23.3	20	85.0
	M	-	17	1	-	2	-	-	-	-	19	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
M2F61	L	2	16	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	8	-	-	19	-	-	-	-	-	-	-	31.9	19	59.5
	M	-	22	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	8	-	-			
M2F63	L	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	2	-	-	-	-	-	-	-	2532.6	41	1.6
	M	-	9	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
M2F65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.7	6	25.3
M2F67	L	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	85.0	38	44.7
	M	-	4	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-			
M2F68	L	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	6	-	-	-	2	-	-	-	15.5	10	100
	M	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
M2F69	S	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50.1	18	35.9
	L	-	15	-	-	4	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	10	-	-	-	-	-	-	-			
	M	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

PROVENIENCE	RECOVERY TECH.	KERNEL	KERNEL FRAG	EMBRYO	COB FRAG.	CUPULE	BEAN	SQUASH	SUNFLOWER	TOBACCO	BUTTERNUT	ACORN	HICKORY	PIN CHERRY	CHOKE CHERRY	WILD PLUM	HAWTHORN	BLACKBERRY	DOGWOOD	PRICKLY ASH	RASPBERRY	ELDERBERRY	STRAWBERRY	SUMAC	SPIKENARD	BELLWORT	GRASS	STEM OR STALK	PLANT FRAG.	UNKNOWN	UNIDENT.	EST. FEA. VOL.	FLOTATION SAMPLE VOL.	% OF FEATURE FLOATED
H2F72	L	-	11	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	3	-	2	6	-	29	-	-	-	-	2	-	-	35.1	17	40.4
	H	-	14	2	-	1	-	-	1	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	9	-	-			
H2F76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.2	5	49
H2F77	S	5	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	138.8	33	23.0
	L	2	23	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	11	-	-	-	1	-	-	-			
	H	1	27	3	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-			
H2F80	L	-	9	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	27.5	17	61.0
	H	-	12	2	-	3	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F81	L	-	9	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	13.6	9	66.1
	H	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F86	L	-	1	1	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	10	6	-	-	-	-	7	-	-	-	-	500	13	2.6
	H	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-			
H2F87	S	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.9	14	82.0
	L	-	12	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-	-	-			
	H	-	22	-	-	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	6	-	-			
H2F91	S	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48.5	27	55.6
	L	6	37	2	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	-	-	-	-	-	-	1			
	H	-	53	5	-	3	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F92	L	-	-	-	-	-	-	-	-	3	-	-	-	1	-	-	1	-	-	-	-	-	4	106	-	-	-	-	-	-	9	78	18	23.1
	H	-	6	-	-	5	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F97	L	3	6	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	-	30.3	24	78.2
	H	-	15	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F102	L	-	4	1	-	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-	3	9	-	-	35.1	20	57
	H	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F106	L	1	7	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	32	4	-	7	-	-	8	2	-	-	-	12.9	23	100
H2F113	S	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	18	45
	L	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	5	-	-	-			
	H	-	6	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

PROVENIENCE	RECOVERY TECH.	KERNEL	KERNEL FRAG	EMBRYO	COB FRAG.	CUPULE	BEAN	SQUASH	SUNFLOWER	TOBACCO	BUTTERNUT	ACORN	HICKORY	PIN CHERRY	CHOKE CHERRY	WILD PLUM	HAWTHORN	HACKBERRY	DOGWOOD	PRICKLY ASH	RASPBERRY	ELDERBERRY	STRAWBERRY	SUMAC	SPIKENARD	BELLWORT	GRASS	STEM OR STALK	PLANT FRAG.	UNKNOWN	UNIDENT.	EST. FEA. VOL.	FLOTATION SAMPLE VOL.	% OF FEATURE FLOATED
H2F117	S	32	49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	L	163	1604	2	4	221	5	-	2	315	-	-	-	4	-	1	5	-	-	-	39	11	14	133	7	-	24	21	-	1	-	93.9	64	68.1
	H	59	1076	3	1	147	-	-	1	-	9	29	-	1	-	1	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2F119	S	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.2	0	0
H2F121	L	-	-	-	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	—	-	-	-	-	-	14.3	17	100
	H	-	10	-	1	1	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-			
H2F128	L	2	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	3	-	-	24.3	19	78.2
	H	-	10	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-			
H2F132	S	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	L	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	131.1	21	16
	H	-	3	-	-	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2POST2	S	-	2	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	L	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2POST53	S	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2POST53	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	2	-	-	-	-	-	-	-			
	S	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2POST3	S	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2POST24	L	-	9	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-			
	H	-	8	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
H2POST8	L	3	11	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-			
	H	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
POST 40	H	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
TOTAL	S	56	62	-	1	1	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	L	192	2100	8	8	436	6	3	6	332	-	1	-	8	-	1	12	-	3	-	120	77	19	643	7	-	195	185	26	3	23			
	H	60	1700	43	6	308	3	-	2	-	103	31	6	3	1	1	33	1	1	-	-	-	-	8	1	-	1	8	51	-	3	5534.4	1011	18.3
TOTALS	-	308	3862	51	15	745	9	3	8	332	106	32	6	11	1	2	45	1	4	-	120	77	19	651	8	-	196	193	77	3	26			
SITE TOTAL		336	4437	78	15	1034	11	3	9	356	174	36	8	16	3	2	72	1	5	2	704	457	19	702	279	32	214	285	396	13	44			